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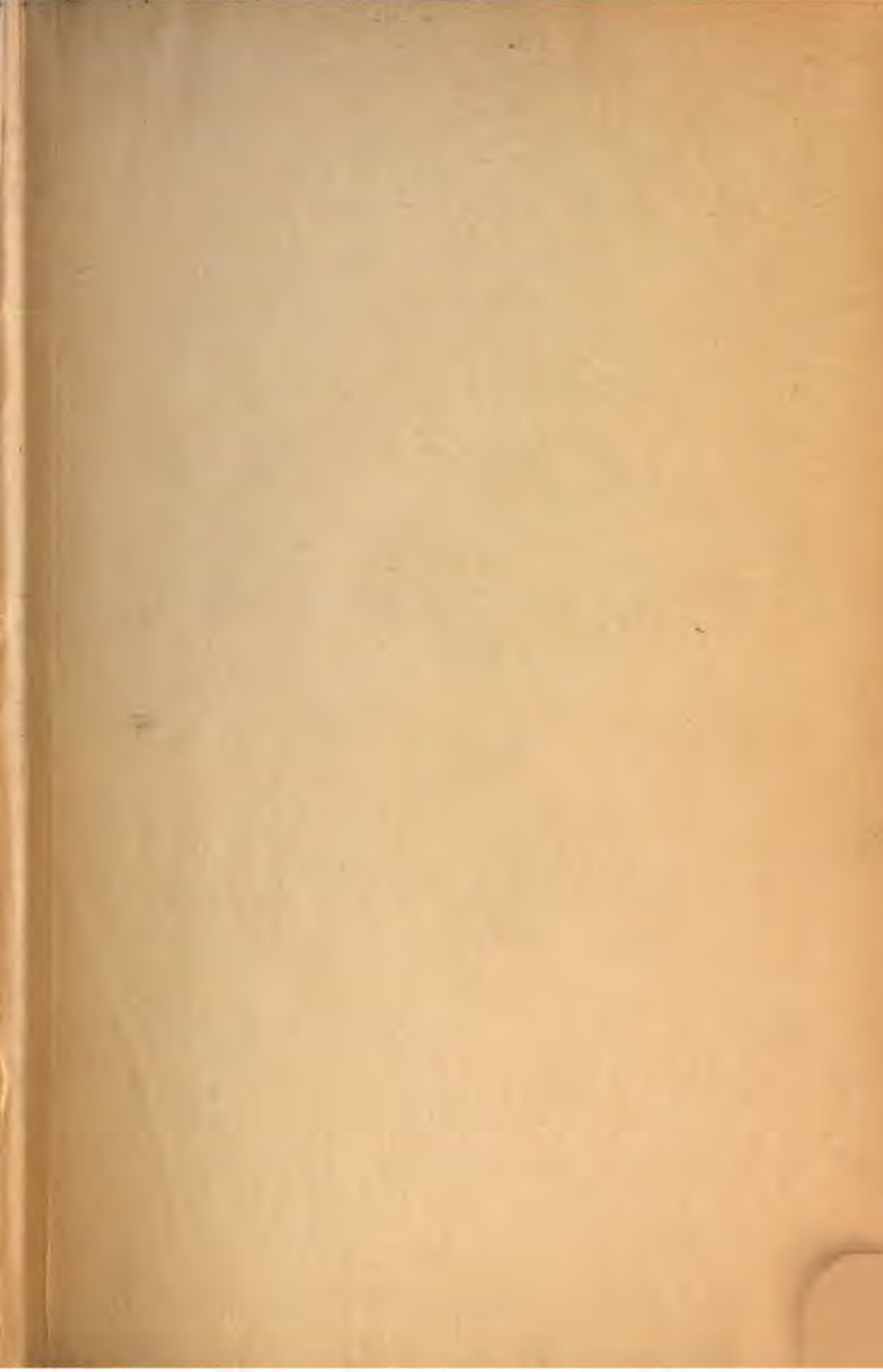
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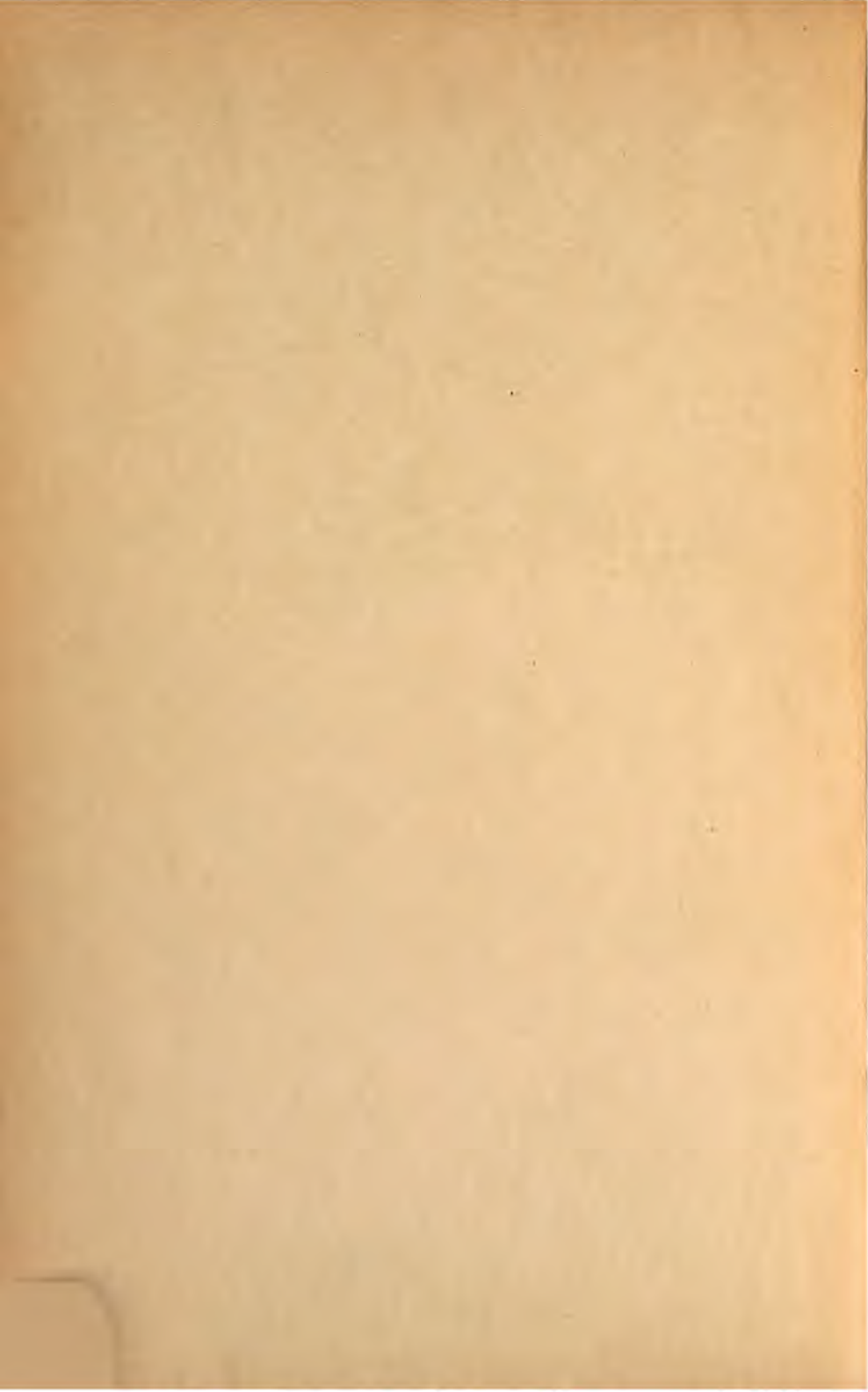
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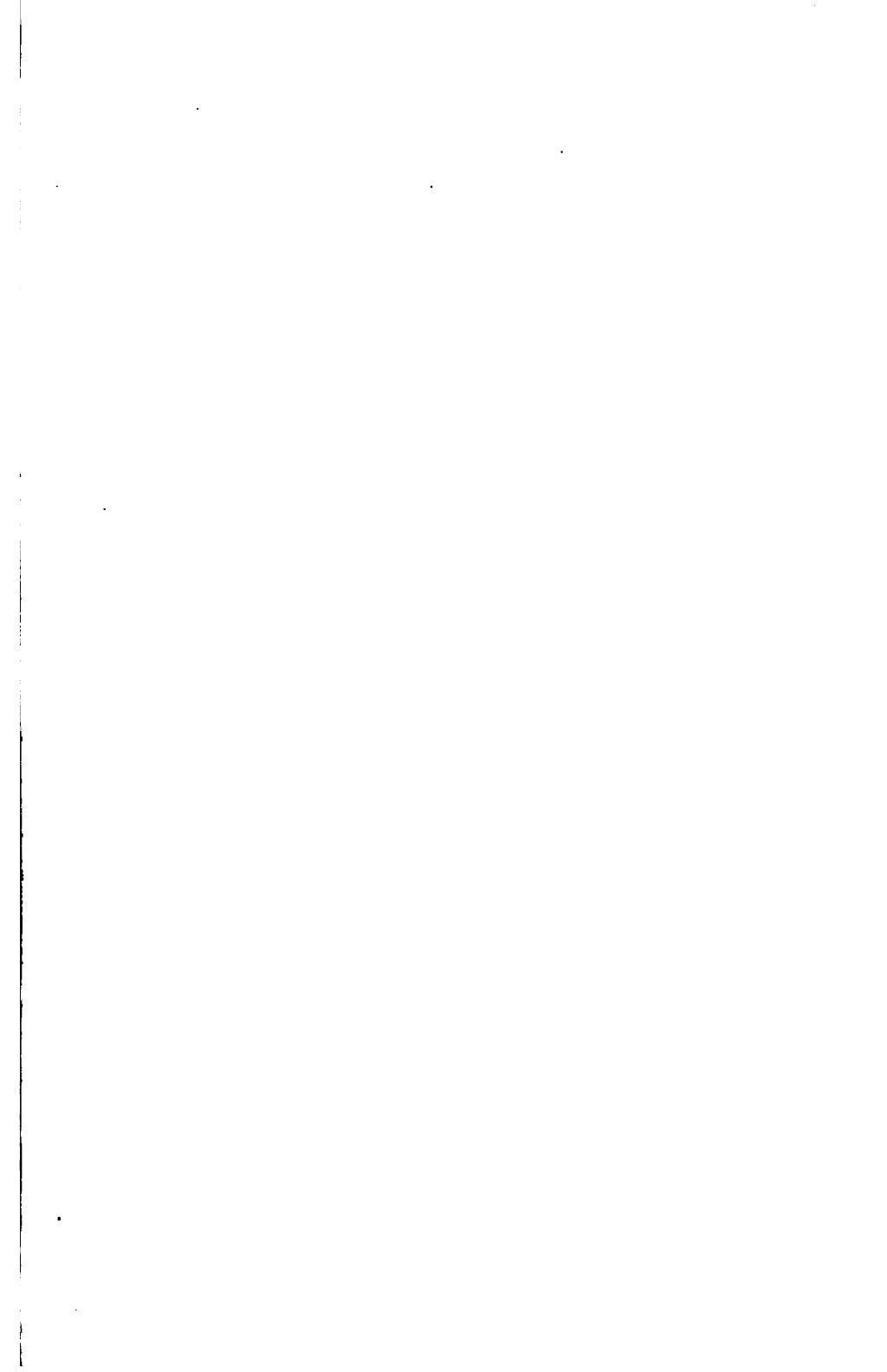
FROM

Rufus R. Wade











*National association of factory inspectors  
of North America.*

NATIONAL CONVENTION

OF

# Factory Inspectors

IN THE

UNITED STATES,

COMPLIMENTS OF . . . . .

Rufus R. Wade,

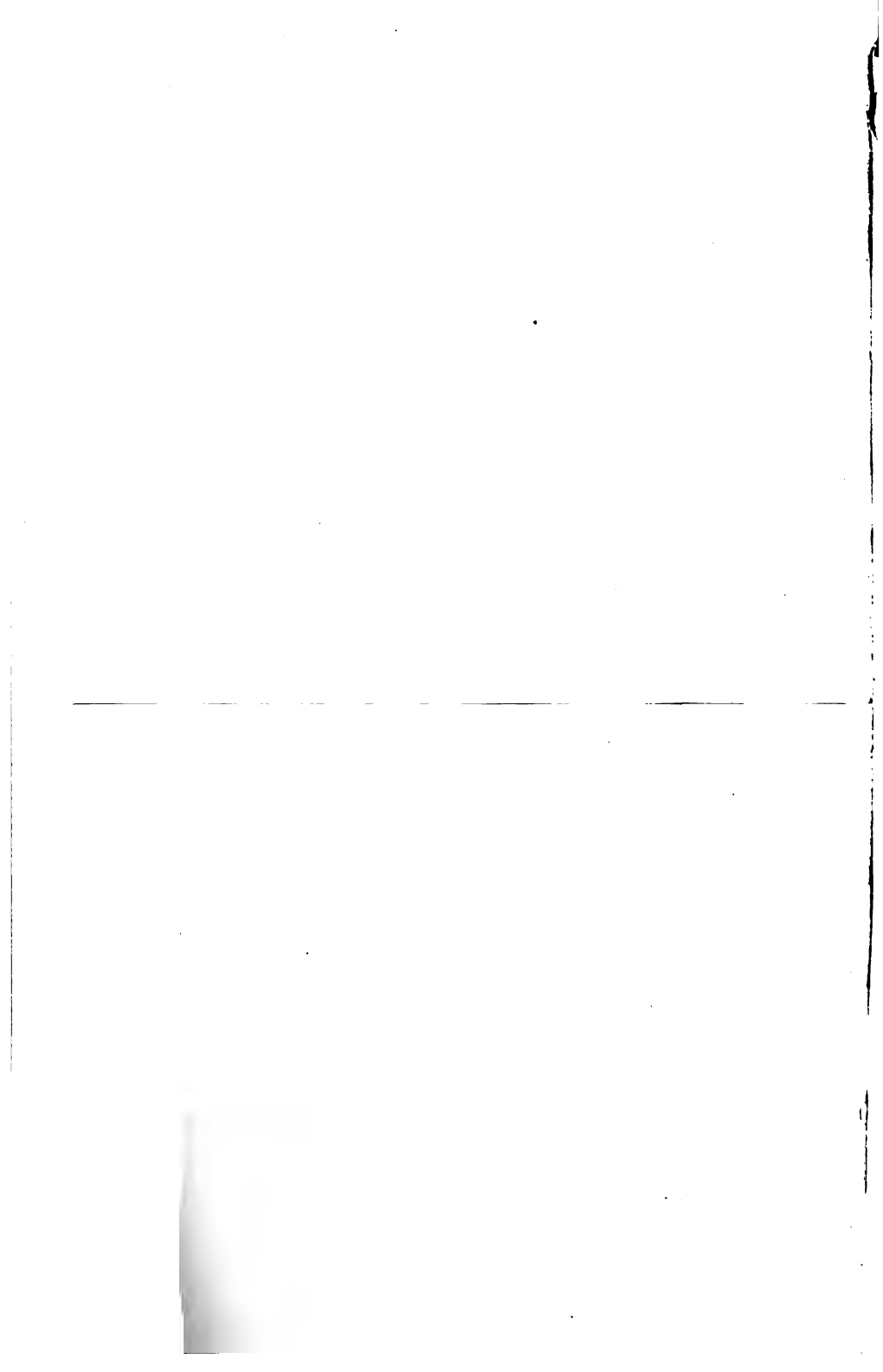
CHIEF MASS. DISTRICT POLICE,

. . AND . .

CHIEF INSPECTOR OF FACTORIES

. . AND PUBLIC BUILDINGS.

COLUMBUS, OHIO:  
MYERS BROTHERS, BOOK AND JOB PRINTERS.  
1887.



(1)  
National association of Factory Inspectors  
of North America.

NATIONAL CONVENTION

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HELD AT

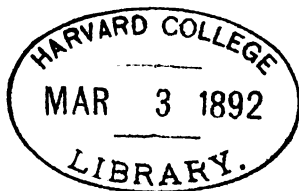
Philadelphia, June 8-9, 1887.

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COLUMBUS, OHIO:  
MYERS BROTHERS, BOOK AND JOB PRINTERS.  
1887.

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*Page 21*

## FACTORY INSPECTORS.

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RUFUS R. WADE, *Chief* . . . . . Boston, Mass.  
L. T. FELL, *Chief*. . . . . Orange, N. J.,  
HENRY DORN, *Chief*. . . . . Columbus, Ohio.  
JAMES CONNOLLY, *Chief* . . . . . New York City.  
HENRY SIEBERS, . . . . . Milwaukee, Wis.  
W. P. KELLEY, . . . . . Killingly, Conn.  
L. R. CAMPBELL. *Deputy Com'er of Labor*, Rockland, Maine.



## PREFATORY.

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The importance of bringing together the Factory Inspectors of the different States has long been recognized. The benefits that would likely accrue from a conference of those whose duties involve such vast consequences to community were manifest. The laws on the subject of inspection in the various States are so different as scarcely to be recognizable as being upon the same general subject. To produce something like uniformity, both in the laws and in the practice of the inspectors, was deemed desirable, and this could only be effected by an interchange of views and a comparison of the statutes under which each inspector acted. To accomplish so laudable a purpose, Mr. HENRY DORN, Chief Inspector of Workshops and Factories of Ohio, opened a correspondence during the year 1886 with the Inspectors of other States, with the view of bringing about a meeting at as early a date as practicable. This, of course, took considerable time. Each Inspector entertained views peculiar to himself on the subject, and these conflicting ideas had to be harmonized.

But Mr. DORN persevered in his efforts, and finally succeeded. The Philadelphia Convention, whose proceedings are recorded in the following pages, was held, and every man who attended that meeting is fully satisfied with the results. The wisdom and foresight that suggested the movement were manifest to the members. A permanent organization was effected and arrangements made for annual meetings hereafter. These annual meetings



will, no doubt, grow in importance and interest, and, it is confidently believed, will result in incalculable benefit to all concerned, to the employer as well as the employe, and to the public at large. That such may be the case is the ardent hope of the Factory Inspectors who assembled at Philadelphia on the 8th and 9th of June, 1887; and I believe that I but voice the sentiment of all my associates in that Convention, when I say that Hon. HENRY DORN, Chief Inspector of Workshops and Factories of Ohio, is deserving of all praise for his untiring efforts in bringing us together, and for the wisdom, born of experience, he exhibited in our deliberations, showing, as he so clearly did, a complete mastery of the entire subject.

L. T. FEILL,

*Chief Inspector State of New Jersey.*

# FIRST NATIONAL CONVENTION.

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PHILADELPHIA, WEDNESDAY, *June 8, 1887.*

The First National Convention of State Factory Inspectors convened in the Chamber of the Common Council of the city of Philadelphia at 11 o'clock A. M., and was called to order by Mr. HENRY DOHN, Chief Inspector of Ohio, who introduced Hon. CHARLES LAWRENCE, President of the Common Council, who welcomed the members to the city in an eloquent address.

Mr. DOHN then delivered the following address:

*Gentlemen of the Convention:*

We have assembled for the purpose, as I understand it, of taking counsel, one of another, as to the best means of accomplishing the object for which the office of factory inspector was created.

We, as factory inspectors, are unlike, in the duties imposed upon us and the results to be attained, all other officers of the States we represent, and for this, among other reasons, I do not think it advisable to connect the office of factory inspector with any other, or to subordinate it in any way to any bureau or department of the State government.

As the duties of the inspector are distinct from those of any other officer, so are the abilities necessary for the proper and successful discharge of those duties of a different order from those required of the heads of other departments.

There seems to be a disposition to unite the offices of factory inspector and commissioner of labor statistics. The latter is an office of great importance, but its proper sphere is the collection of facts, and the systematic arrangement of data for the information and guidance of the legislator, while the purpose of the former is to effect immediate results. While an ability to collate and analyze ascertained facts concerning the social and industrial condition of the people is an absolute requisite in the statistician, the factory inspector should be a master of mechanism, and also be possessed of a fair knowledge of hygiene, at least as far as relates to ventilation, and the effect of different gases, dust, etc., upon health. The two positions are so dissimilar in every respect, it seems strange that it should ever have occurred to any one to unite them under one head.

A man may be a master of statistics, and yet not know the difference between a pulley and a fly-wheel; and, on the other hand, while a man may be a thorough adept in mechanism, he may be as ignorant of the teachings of statistics as the red man of the forest.

The office of factory inspector is of comparatively recent origin. The people at large possess but a limited knowledge of its designs, and have but an imperfect idea of what it may accomplish for their good, and before we can succeed fully in our undertaking, the people must be made acquainted with the importance of the subject, the necessity of thorough inspection, both from the standpoint of the philanthropist and from that of the patriotic statesman.

Many well meaning men look upon us as being in some way identified with those who are considered labor agitators, while the fact is that the certain result of a full and cheerful compliance with the laws under which we act would be the lessening of agitation by making the workmen more contented in consequence of improved sanitary conditions, and the reduction to the minimum of liability to accident. Poorly ventilated and otherwise disagreeable workshops or factories are not calculated to produce that peace of mind which reconciles the workman to his hard lot. Neither are mangled or broken limbs convincing arguments that the pathway of the laborer is strewn with roses.

Make our workshops and factories comfortable and healthy, and secure those employed therein against the accidents that are now of daily occurrence, and one great source of discontent and consequent strikes will be removed. While millions of money are spent in the interest of domestic live stock, it does not seem extravagant to ask for a few thousand in the interest of humanity. It is folly to expect either men or women to be contented, and to cheerfully perform their laborious tasks, while breathing a poisonous atmosphere, and in momentary danger of being either killed or crippled for life by insecure machinery, or of having their bodies charred by the flames of a burning workshop or factory, from which the means of egress are insufficient.

When mishap overtakes them, what have they to rely on for support? They and their little ones, in such a contingency, which is of frequent occurrence, have the alms-house only to rely on, and that is not a very agreeable fact to contemplate by those who have been taught to consider themselves the peers of the highest.

The American mind naturally revolts at the thought of having to be supported by public charity. The factory operative knows he has contributed his share to the wealth of the country, and to know that the heartless, criminal negligence of his employer may at any time consign him and those dependent on him for support to the tender mercies of the public alms-house, is not likely to convince him that he is treated as he should be, or that combinations and strikes are as

odious as some paint them. There is a sense of right, of fairness, of justice between man and man, in the mind of every human being, however poor or illiterate, and he naturally and rightfully rebels against every attempt to place him on a level with the beasts of the field. He has been taught that he was made in the image of Jehovah, and believing this, he is fully persuaded that he should be treated with humane care and consideration, without regard to the number of dollars in his pockets, or to the quality of the cloth he wears.

And if we look at this subject from the standpoint of the proprietor only, if we take a purely dollar-and-cent view of it, one of profit to the manufacturer, the necessity of thorough inspection is just as great.

It is a mistaken idea entertained by some, that a few dollars expended for the purpose of securing the comfort and protecting the lives of employes will lessen the profit side of the account to that extent. The greater the interest the employe takes in his work, the greater the profit of the employer; and no fact is better established than that the workman cares for his employer just in proportion as the employer cares for his workman. Good and humane treatment on the part of capital is sure to receive a proper and profitable reward from labor. It is a paying investment.

Who has not seen, almost daily, instances of sullenness and indifference on the part of workmen, resulting in loss to the employer, caused by the neglect of the latter to properly provide for the comfort of his work people? This feeling is perfectly natural, and is far more costly to the manufacturer than would be the placing of his establishment in a condition that would secure the health and safety of those on whose labor he relies for his profits, and who rely on him for support.

The duties that the law under which we act have mapped out for us are far-reaching in their effects. On us, or at least on some if not all of us, devolves the important duty of ascertaining whether children under a certain age are employed in workshops and factories. A strict compliance with this wise and wholesome requirement demands the exercise of a sound judgment, and at the same time unwavering firmness on our part. This provision of the law, while to some it may seem arbitrary and unjust, is based on sound statesmanship, and strikes at the very foundation of all our industrial troubles. It meets with the approval of the purely humanitarian, and preserves, to a great extent, the State from the effects consequent upon the enforced idleness of a considerable portion of its male adults. It is certainly better that the father should labor, and the child attend school, than that the child should be immured in a workshop or factory, at the risk of health and the certain deprivation of that education which is necessary to fit it for the intelligent exercise of the privileges of citizenship, while the father is doomed to a life of idleness, with all the evils incident thereto. This law is in the direct interest of intelligence, and, consequently, of free

institutions, and, at the same time, contributes largely to the pacification of the wage-workers of the country, by increasing the demand for their labor, and, as an inevitable consequence, increasing their compensation therefor.

These are some of the results that may surely be expected to follow the enforcement of the child-labor laws of the several States. In what way could we more certainly contribute to the welfare of the State and to the happiness of our fellow beings than by seeing to it that this wise and humane law is strictly enforced, as far as we have the power to enforce it?

We have other duties to perform, we are under other obligations to the people in whose behalf we labor, but none transcend, in the magnitude of its beneficial effects, the sacred obligation we are under to humanity, to the present and future generations, to see to the proper execution of the child-labor law. Proper care taken of the little ones renders comparatively easy the task of providing for the older and more mature. "One ounce of prevention is worth a pound of cure."

Then, again, our business brings us in contact with all kinds of men, requires of us the careful examination of all kinds of structures, and of all kinds of machinery and mechanical appliances. We have to judge of the necessity and adequacy of fire-escapes, or other means of men, women and children escaping from a burning workshop or factory. It is our duty to put a stop to this oft recurring human sacrifice to greed or ignorance.

What could be more appalling than the graphic account of the holocausts that so frequently meet our eyes on opening a daily paper? To discharge our duties in this regard to the satisfaction of all parties concerned, requires of the workshop and factory inspector a tact, a judgment, a patience and perseverance that are but little appreciated by the great majority of the people. We do not do enough for some, and too much for others. We are between two fires. We must trust, in the main, to our common sense, and endeavor to do to others as we would have others do to us. Our object, in these examinations, is to protect all, and to injure none. If we sometimes fail in reaching and correcting some existing evil, it is because we are fallible mortals, not because of design or intended neglect. We labor under many difficulties. We have to travel, at least some of us do, in the course of a year, over territory embracing from ten to twenty-five thousand square miles. It would indeed be strange if we should not miss, in such a wide field, an establishment or two needing our attention.

We have undoubtedly accomplished much in the short time we have had an official existence, and this, too, with inadequate means, and despite the opposition of heartless greed on the one hand and ignorant prejudice on the other. But much remains to be done. Opposition to inspection is fast disappearing. We are welcomed or not, just in pro-

portion to the manufacturer's knowledge of our purposes, and the results expected to be effected by our examinations. It is fast coming to be understood that discontented workmen are not the most profitable, and that unsafe machinery and a poisonous atmosphere are neither necessary nor economical.

It would, perhaps, be well if we could have more uniformity, both as to the laws and the manner of carrying them out in the different States; but in some respects this cannot be had. The conditions existing in different localities are so unlike that the same law could not possibly operate satisfactorily in all. Certain industries that form so prominent a feature of the manufactures of the eastern States are almost unknown west of the Alleghenies, and many of the workshops and factories of Ohio, Indiana, Illinois, Michigan, and other western States, have no counterpart on the Atlantic slope. We must, therefore, accommodate ourselves to the conditions with which we find ourselves surrounded. We are all seeking the same end, though it may be necessary to employ different means.

We are here for the purpose of comparing notes and of each one availing himself of the experience and suggestions of others. We have much to learn, and no one should hesitate to avail himself of all knowledge that presents itself, come whence it may. We should willingly learn all we can relating to our special duties, and as willingly apply all we know to the accomplishment of the good work in which we are engaged. We are endeavoring to restore the child to the school-room, and to prevent the useless and criminal waste of health and life that has heretofore gone on unheeded and unchecked. We are endeavoring to protect the working people of the country in life, health, and limb, and to rear their children in such manner that they may become intelligent and healthy men and women; the possessors of sound minds, of good morals, and of unbroken constitutions. No man was ever engaged in a better cause, and no cause should receive a more cordial support from the State and the public at large.

I hope we shall not return to our homes without having been benefited by this meeting. I hope that we shall go hence better fitted to labor in the interest of humanity, and with a more comprehensive understanding of the wants of the workers of the country, and how to supply those wants. I also hope that before we separate we shall have effected a permanent organization. We should meet annually, that each one may receive new encouragement and strength from the experience of the previous year.

The press can be of immense benefit to us and to the cause we represent by disseminating facts bearing upon the subject of shop inspection. As to what may occur or be done here, I have no doubt that the reporters will place us in a proper light before their readers. There is no aid so desirable, none so powerful, as the support of a free, fear-

less, and untrammelled press. Its mission is to give its readers unvarnished facts, and such comments thereon as may be deemed necessary to a proper understanding of the subject matter.

On motion of Mr. RUFUS R. WADE, Chief Inspector of Massachusetts, Mr. DORN was unanimously elected temporary President of the Convention.

Mr. J. J. JENNINGS, of Connecticut, was chosen temporary Secretary.

The following gentlemen appeared and were recognized as delegates:

*Massachusetts.*—Rufus R. Wade, Chief, Boston; John T. White, Boston; Joseph M. Dyson, Worcester; H. A. Dexter, Fall River; J. H. Chadwick, North Adams; S. C. Hunt, Salem; W. S. Buxton, Springfield.

*New Jersey.*—L. T. Fell, Chief, Orange; G. P. Hall, Bridgeton; John C. Craigie, Newark; John D'Arcy, Trenton.

*Ohio.*—Henry Dorn, Chief, Columbus; H. C. Traphagen, Cincinnati; William Z. McDonald, Akron; John H. Ellis, Columbus.

*Connecticut.*—J. J. Jennings, Bristol, representing the State Board of Education.

Mr. HALL, of New Jersey, moved the appointment of a committee of five on permanent organization, which was agreed to; and the Chair appointed as said committee Rufus R. Wade and Joseph M. Dyson, of Massachusetts; L. T. Fell, of New Jersey; J. J. Jennings, of Connecticut, and John H. Ellis, of Ohio.

Mr. HALL, of New Jersey, acted as Secretary of the Convention in the absence of Mr. Jennings, serving on the foregoing committee.

On motion of Mr. HUNT, of Massachusetts, it was agreed that when the Convention adjourn it be till three o'clock P. M.

The invitation of Mr. Lawrence, President of the Common Council, to visit Girard College, and other places of interest, on Thursday afternoon, was, on motion of Mr. HUNT, accepted.

The CHAIR stated that he had just received a telegram from Mr. John Franey, Assistant Inspector of New York, stating that he had missed the train, but would be present the following day.

On motion of Mr. TRAPHAGEN, of Ohio, the President was

requested to telegraph at once, requesting Mr. Franey to attend the Convention.

The Committee on Permanent Organization reported, recommending the following officers:

*President*—RUFUS R. WADE, of Massachusetts.

*Vice President*—L. T. FELL, of New Jersey.

*Secretary and Treasurer*—HENRY DORN, of Ohio.

The report was unanimously agreed to.

Mr. WADE, on taking the chair, delivered the following address:

*Gentlemen of the Convention:*

That I should be called upon to speak of the industrial and inspection laws of Massachusetts, I have no doubt, was expected by every delegate present, and I have therefore noted down some of the most important legislation relating to subjects that would naturally come before the Convention for discussion; and for another reason, that the established policy of the good old Commonwealth might be better known and be followed by similar legislation in other States.

Interesting and important questions which concern both employer and employe will undoubtedly engage our attention, and I trust the results of our conference here will be of benefit to us all in the administration of laws that are or may be enacted for the improvement and advancement of the laboring population.

The Commonwealth of Massachusetts knows no class among her citizens. All alike share the benefits of her institutions. Capital, as such, is entitled to no special favor that labor may not claim. The avenues to wealth, learning and distinction are public highways, and the pathways are kept unobstructed.

Certainly some, if not all, of us bring to the discussion of these questions an experience covering many years of active work, patient thought, and vast opportunity. The chief fear I have in addressing gentlemen who are experts in the branches of official duty represented here, is well illustrated by the story of the little boy, who, coming home from church one Sunday, asked his mother, "Does God take the newspapers?" "No, my child; why do you ask?" "I thought he didn't, because it took the minister when he prayed so long to tell Him about things."

Now, I assume, gentlemen, that you take the newspapers, and know something of the matters that may come before us for discussion.

It must be conceded, however, that while our general work is similar, and the results aimed at are in their leading features identical, our methods of administration may widely differ.



Whether we shall learn much from each other depends upon several things. It depends upon our willingness to learn; it depends upon seeing things from another standpoint than our own.

In the remarks I shall make it is my purpose to give as much information as possible concerning the industrial legislation of the Commonwealth of Massachusetts. It ought not to shock the modesty of a Massachusetts man to claim that his State was the pioneer among our sisterhood of States in the enactment of wise and useful laws for the protection and elevation of her laboring population.

The limiting of the hours of labor for women and minors in factories and similar establishments was under discussion many years before the legislature could be prevailed upon to take action upon the subject. In many country school-houses and lyceums, in many debating clubs, on the political rostrum, beside many a forge and furrow, loom and anvil, gathered thoughtful, earnest men, who exchanged experiences, told the story of their hardships, questioned the established order of things, and participated in an agitation which did not subside until it had left its broad impress upon our statutes.

These questions related to the hours of labor, the physical condition of the operatives, protection from unguarded machinery, the employment of women and minors, the schooling of children employed in factories and workshops, the preservation of health, reports of accidents, safety appliances for elevators, better provision for escape from hotels and other buildings in case of fire, sanitary improvements of workshops, uniform meal hours for children, young persons and women employed in factories, and to secure the proper ventilation of such buildings.

It was admitted by all fair-minded men conversant with such matters that radical changes were necessary in order to satisfy the reasonable demands of the great mass of our people, who were obliged to earn their bread by the sweat of their brow, but who demanded that the condition of such a life should be made as little burdensome as possible.

The history of what is called our ten-hour law was a record of constant, feverish struggle, maintained year after year, passed in one branch of the legislature and defeated in the other; and it was not until several annual sessions had elapsed that the bill so earnestly and bitterly fought over became a law. It is well that such laws are enacted. It is well that the producers of wealth have been recognized.

It is a natural law that water shall find its level, and up to certain limits you can restrain and confine it. Like all natural forces, it will serve you if you will wisely conform to the law of the case, or destroy you if you try to override that law.

I do not understand that you can determine, with mathematical exactness to what extent a certain reduction of hours will affect the sum of productions in any given year. It is a large question to deal

with, and something of its magnitude may be understood when you consider that the machinery employed in Massachusetts alone is equal to the labor of many millions of men.

But in our State the policy has been established of conserving manhood. The eye, the hand, the brain of the worker are finer machines than any produced by his labor and skill. So we think it is wiser to improve our people than to increase the productive capacity of our machinery.

This was the controlling motive in the minds of those who advocated a reduction of the hours of labor in our factories and workshops.

Whether from motives of humanity, or from economic considerations, the Legislature of Massachusetts, representing the wishes of the people generally, from 1874, when the bill to regulate the hours of labor became a law, down to the session of the current year, has thrown the safe-guards of law around her laboring people, and sought to protect them from evils and dangers to which they were exposed by the cupidity or the thoughtlessness of others.

Our law in Massachusetts in relation to the employment of labor provides that persons employed in factories shall not be discharged without notice, if a notice of intention to leave such employment is required of them; that whoever, by intimidation or force, prevents, or seeks to prevent, a person from entering into or continuing in the employment of a person or corporation shall be punished by a fine of not more than one hundred dollars; that the employers of labor shall not contract for exemption from liability for injuries which result from employers' own negligence, or from the negligence of other persons in such employment.

The minors under eighteen and women shall not be employed in manufacturing or mechanical establishments more than ten hours in any one day, with certain exceptions as to lost time on some previous day of the same week, as the stopping of machinery or an apportionment of time to make one short day of the week. We have also a law relating to the employment of minors in mercantile establishments which prohibits their employment more than ten hours in any one day.

The laws relating to the employment of children in manufacturing and other establishments provide that no child under ten years of age shall be employed in any manufacturing, mechanical or mercantile establishment in the State, and no child under twelve years of age shall be employed at any time during the days in which the public schools are in session in the city or town in which he resides. No child under fourteen years of age shall be employed except during the vacation of the public schools, unless during the year preceding such employment he has for at least twenty weeks attended some public or private school, under teachers approved by the school committee of

the place where such school is kept; and a certificate must be presented, made by or under the direction of the school committee, of his compliance with the foregoing requirements.

Provisions are made for the inspection of establishments employing such minors, and of the certificates required by law. No child under fourteen years of age is permitted to clean any part of machinery while in motion by the aid of steam, water, or any other mechanical power.

We have a law, likewise, to secure uniform and proper meal hours for children, young persons and women employed in factories and workshops, with certain suitable exceptions. Among the most recent laws is that to secure the proper ventilation of factories and workshops, and another to secure proper sanitary provisions in such establishments.

The law requiring accidents to be reported will operate, in many cases, to prevent such occurrences. We have an act for the promotion of the health of females employed in manufacturing, mechanical and mercantile establishments, which requires that suitable seats shall be provided for the use of females employed when not necessarily engaged in the active duties for which they are employed. Another wise law is one which prohibits the locking of doors of buildings wherein operatives are employed during the hours of labor.

A very important department of our work remains to be spoken of. I mean that of inspection. We have officers of large experience. The city of Boston has its own inspection laws and officials; but the rest of the Commonwealth is covered by the inspectors of the District Police.

In the act relating to the inspection of factories, rules are prescribed for securely guarding the belting, shafting, gearing and drums, when so placed as to be dangerous to persons employed; for protection in respect to the openings of hoistways, hatchways, elevator and well-holes upon every floor of a factory, and for safety appliances that will prevent the fall of a cab or car, in the event of the breaking of the hoisting ropes or machinery; for properly constructed stairways and fire-escapes. Each story must be amply supplied with the means of extinguishing fires; and all main doors shall, in factories and public buildings, open outwardly when the inspector shall so direct.

We have an act to secure better provisions for escape from hotels and boarding houses, in case of fire; an act in relation to safety appliances in hotels and public buildings; an act to prevent the construction of wooden flues for heating or ventilating purposes; an act relating to providing means of communication between rooms in manufacturing establishments where machinery is propelled by steam, and the room where the engineer is stationed.

For the successful administration of such laws, much depends upon

the experience and fitness of the inspector. It is certainly creditable to the managers of the vast industrial interests of the State which I represent that they have so generally complied with the requirements of statutes which, until of recent date, had no parallel in the legislation of States adjacent.

I cannot refrain from calling your special attention to the requirements, by law, of school attendance of children, before and during their employment, up to a certain age. I have been deeply impressed with the results that have attended the enforcement of the school laws in my own State. Eighty per cent. of the children who were permitted to work before the law was enacted are now at school, obtaining an education, an education which changes drudgery into intelligent labor, and better fits them for the burdens and blessings of citizenship. More than that, an education that changes laborers into workmen, and from the ranks of the workmen, master workmen and inventors, and with the present age, inventors and their wonderful works.

The free school for all children, rich or poor, was born in Boston, and was adopted by the colonists as their numbers increased. The free competition in studies soon demonstrated the equal mind power of all classes.

Europe does not believe in the equal mental capacity of the children of the poor, but here the industrial classes, by adding mind power to strength, and putting the combination into practical service, have done more in two centuries for the elevation and redemption of humanity than all the men of antiquity and property ever accomplished.

The true American system has been, and is, to develop and combine mind power with hand power—skilled labor of head and hand; and they produce the grandest and noblest manhood, a manhood that not only believes in equal rights under the law, but in the majesty of the law. Man without the school-house is only an animal. With strength, and mind, and heart educated and developed, he is truly the noblest work of God.

In a letter from one who, while living, was honored throughout the land, and whose memory will ever be revered, to Charles Sumner, dated April 20th, 1862, you will find these words: "In every country the dangerous classes are those who do not work. For instance, the nobility in Europe and the slaveholder here. It is evident the world needs a new nobility, not the gold metal, and sangre azel order; not of the blood that is blue, because it stagnates, but of the red arterial blood, that circulates, and has a heart in it, and life and labor." These words of truth are cheering to all who are looking forward and upward in faith, and hope, and love.

The policy of the Commonwealth of Massachusetts, settled from its foundation, and steadily adhered to, in respect to popular education, has been a recognition of the fact that the greatness of a State is measured,

not by its geographical extent, its commercial advantages, its natural resources, but the moral and intellectual quality of its people. If we look at the grand list of American noblemen the last thirty years have revealed to the world, we will find that they are the product of our schools and our workshops. Should we not, above all other duties, all other considerations, strengthen and maintain the supremacy of laws which have resulted in so many blessings to the human race?

Mr. FELL moved that the proceedings of the Convention be printed, including the address of Mr. Dorn and that of Mr. Wade; which was agreed to.

Mr. LAWRENCE, President of the Common Council, was unanimously tendered a vote of thanks for courtesies extended to members of the Convention.

On motion of Mr. HUNT, a unanimous vote of thanks was tendered to Henry Dorn, for his efforts and success in bringing about this Convention.

On motion of Mr. ELLIS, of Ohio, the Chair appointed a Committee on Resolutions, consisting of Messrs. Ellis, Fell, White, Traphagen, and Jennings.

On motion of Mr. FELL, the chiefs of Ohio and Massachusetts were added as *ex-officio* members of the above committee.

The Secretary appointed Mr. Traphagen as Assistant Secretary. The Convention then adjourned until 3 o'clock P.M.

#### AFTERNOON SESSION.

The minutes of the morning session were read and approved.

Mr. DORN introduced the following resolution on the subject of child labor, which was referred to the Committee on Resolutions:

WHEREAS, Efforts are being made in several States to prevent, by legal enactment, the employment of minors, under specified age, in workshops and factories; and as we believe such laws are demanded by the best interests of mankind, and that they should be universal as well as uniform throughout the United States, therefore be it

*Resolved*, That it is the sense of this Convention that laws should be enacted by every State in the Union prohibiting the employment of minors under fourteen years of age in any workshop, factory, or mercantile establishment, as we consider it a self-evident proposition that

such employment pauperizes the parent and enforces illiteracy on the child, two conditions of society incompatible with republican institutions and the freedom and welfare of man; and that we regard it as the sacred duty of the State to do all that lies in its power to advance the interests of the people and educate the rising generation, to the end that those who, in a few short years, shall become the rulers of the land may be better qualified to direct the destinies of a free people, and to discharge their great obligations in such manner as shall redound to their own credit, and secure the peace, happiness and prosperity of their posterity.

Mr. FELL made a brief statement concerning the inspection and industrial laws of New Jersey.

Mr. HALL spoke on the subject of child labor, and particularly as to the unjust treatment of children in factories.

Mr. JENNINGS spoke at length on the educational laws of Connecticut. He also strongly indorsed that portion of the address of Mr. DORN, in which the latter opposes the combining of the offices of factory inspector and labor statistician.

Mr. DORN spoke at length on inspection and industrial laws, giving some of his experience as factory inspector.

Mr. WHITE detailed his experience as inspector, and gave a brief history of the factory and industrial laws of Massachusetts.

Mr. HALL moved that all members wishing to introduce resolutions should do so before adjourning this evening, which was agreed to.

Mr. HUNT introduced the following resolution in reference to industrial laws, which was referred to the Committee on Resolutions:

*Resolved*, That a permanent executive or legislative committee, consisting of one delegate from each State represented in this Convention, shall be appointed by the President, whose duty it shall be to collect copies of all the present factory and workshop laws, and all statistical information appertaining thereto.

*Resolved*, That said committee be instructed to report to this Convention, if possible, if not, to the next convention of inspectors, some plan whereby a uniform system of factory laws shall be enacted throughout the States taking up factory or workshop legislation.

Mr. HALL introduced the following resolutions, which were referred to the Committee on Resolutions:

*Resolved*, That all the delegates here be requested to use their efforts to have the school boards of each school district in every State where there is now or may hereafter be a system of factory inspection to have sufficient school accommodation as soon as possible, and that where this cannot be secured immediately that the system of half-time, as in practice in some places, be adopted for all children employed in factories, and all children under twelve years of age

*Resolved*, That we use our efforts to secure uniformity in labor laws in the age of all children employed in any capacity whatever, the amount of schooling, and number of hours employed, as follows: Age, not less than 14 for either sex; schooling, not less than 120 days to 16 years; hours of work, not over 8 per day, and women not over 10.

The Convention then adjourned till nine o'clock to-morrow morning.

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THURSDAY, *June 9*, 1887.

The Convention was called to order by the President promptly at 9 o'clock A. M.

The CHAIR stated that the Sergeant-at-Arms of the Common Council desired to know at what time the members of the Convention would be prepared to visit Girard College.

On motion, one o'clock P. M. was fixed as the time for making the visit, in compliance with the invitation of the President of the Common Council.

Mr. JENNINGS suggested the propriety of settling on the time and place of the next Convention.

Mr. DORN expressed his preference for Boston as the place.

On motion of Mr. DYSON, it was agreed that the next Convention be held in Boston, in July or August, 1888, the exact time to be fixed by the officers of this Convention.

On motion of Mr. JENNINGS, everything relating to expense, printing, general management, etc., etc., was referred to a committee composed of the chiefs of the different States represented, viz., Messrs. Wade, Fell, Dorn and Hine.

The Committee on Resolutions submitted the following:

*Resolved*, That the reasons for the appointment of factory inspectors are commensurate with their duties, and that those duties should be—

*First*—To prevent the employment of young children in work unfitted for their age and strength, and to secure their attendance at school

*Second*—To prevent the employment of women in work not suitable for their sex, and for too long daily periods, and to secure for them proper treatment when at work.

*Third*—To enforce the use of proper safety appliances, and obedience to suitable sanitary regulations in factories and workshops.

*Resolved*, That the duties of factory inspectors and of labor statisticians are so entirely different in scope and aim that the two departments should not be directed and supervised by the same chief.

WHEREAS, A uniformity of laws and of practice under them seems desirable in different States, especially in those whose territory is contiguous,

*Resolved*, That the report of this Convention should contain a statement, as accurate as it can be made, of those laws and the practice in different States, for the general information of the public.

*Resolved*, That it is the experience of the factory inspectors here assembled that the enforcement of laws relating to child labor and to providing proper safety and sanitary appliances has been beneficial to all concerned.

Mr. D'ARCY moved that the report be adopted as read.

Mr. HALL opposed the resolutions reported by the Committee as not being sufficiently explicit.

Mr. DYSON favored the report, but felt a delicacy in advising any particular legislation except for his own State.

Mr. JENNINGS took the ground that our work was the general good of all, and not of any class; that the object of this body should be to report facts upon which the people could base conclusions.

Mr. WHITE thought the best way to extend the laws would be for the inspectors to see to it that they were enforced, as it had been shown that they were of great benefit to both employer and employe.

Mr. BUXTON claimed that the young men and women of Massachusetts were preferred as employes on account of their intelligence, the natural result of the school system of the State.



Mr. DORN could not see or understand how the resolutions introduced by him could be interpreted to mean dictation to the law-making power of the different States. He therefore was opposed to the resolutions as reported by the committee.

Mr. HUNT thought the labor bureau of Massachusetts gave the statistical information, and it was for us to give our opinions and the information upon which they were based.

Mr. ELLIS thought we should request the different legislatures to pass uniform laws, so as to protect the people of those States having industrial laws.

Mr. FELL thought that upon a careful consideration of the report of the committee, after reading the different resolutions offered, members would find that they were consistent with those offered, and covered all the points involved.

Mr. HALL moved to add to the report of the committee the following, which was agreed to:

*Resolved*, That the members of this Convention be required to use all proper means to secure a uniformity of inspection laws in all the States having manufacturing industries.

Mr. DORN moved the previous question, which was sustained; and the report of the committee, as amended, was then adopted.

On motion of Mr. HUNT, the thanks of the Convention were tendered the officers for efficient services during the session.

Mr. DORN offered the following resolution, which was adopted:

*Resolved*, That the thanks of this Convention are due, and are hereby tendered, to his honor the Mayor and to the President of the Common Council of the City of Philadelphia, for the many courtesies they have shown us, and we especially thank the Common Council for the free use of the hall in which we have held our sessions.

Mr. TRAPHAGEN moved that the officers of the Convention take such action as to them may seem advisable toward inducing the Patent Office to require that all dangerous machinery shall be properly guarded before issuing a patent therefor. After being amended by substituting a committee of three for the officers of the Convention, the motion was agreed to; and Messrs. Traphagen, Hunt, and Hall were appointed said committee.

Mr. DORN spoke at length of the great danger of double-governor belts, and of the false economy of having boiler and engine in the same room; also, of fire-escapes, pulleys and shaftings, emery-wheels and grindstones, buzz, swing, and band saws, elevators, ventilation and heating, fly-wheels, gearings, etc.

The Convention adjourned to 1 o'clock P. M.

AFTERNOON SESSION.

The minutes of the morning session were read and approved.

Mr. WHITE, in response to a request of Mr. Wade, spoke on the means of egress from buildings, and of elevator safety-catches, fly-wheels and gearings.

On motion of Mr. CRAIGIE, the Convention adjourned, subject to the call of the officers.

HENRY DORN,  
*Secretary and Treasurer.*

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NOTE.—Messrs. James Connolly and John Franey, factory inspectors of New York, and Henry Siebers, inspector of factories of Wisconsin, were not present during the sessions of the Convention.

Mr. J. J. Jennings, of Connecticut, represented the Board of Education of his State.

On June 27th, Mr. William P. Kelley, of Killingly, was appointed factory inspector of Connecticut; and on July 8th Mr. Leonard R. Campbell, of Rockland, was appointed Deputy Labor Commissioner of Maine. His duties are similar to those of factory inspector.

# STATE INSPECTION LAWS.

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The following are the laws of the different States providing for the inspection of workshops and factories, relating to the labor of minors, education, etc.

## MASSACHUSETTS.

### OF THE EMPLOYMENT OF LABOR.

SECTION 1. Any person or corporation engaged in manufacturing, which requires from persons in his or its employ, under penalty of forfeiture of a part of the wages earned by them, a notice of intention to leave such employ, shall be liable to the payment of a like forfeiture if he or it discharges without similar notice a person in such employ, except for incapacity or misconduct, unless in case of a general suspension of labor in his or its shop or factory.

SEC. 2. Whoever, by intimidation or force, prevents, or seeks to prevent, a person from entering into or continuing in the employment of a person or corporation shall be punished by fine of not more than one hundred dollars.

SEC. 3. No person or corporation shall, by a special contract with persons in his or its employ, exempt himself or itself from any liability which he or it might otherwise be under to such persons for injuries suffered by them in their employment, and which result from the employer's own negligence, or from the negligence of other persons in his or its employ.

SEC. 4. No minor under eighteen years of age and no woman shall be employed in laboring in any manufacturing or mechanical establishment more than ten hours in any one day, except when it is necessary to make repairs to prevent the interruption of the ordinary running of the machinery, or when a different apportionment of the hours of labor is made for the sole purpose of making a shorter day's work for one day of the week; and in no case shall the hours of labor exceed sixty in a week.

Every employer shall post in a conspicuous place in every room where such persons are employed, a printed notice stating the number of hours' work required of them on each day of the week; and the employment of any such person for a longer time in any day than that so stated shall be deemed a violation of this section, unless it appears that such employment is to make up for time lost on some previous day of the same week in consequence of the stopping of the machinery upon which such person was employed, or dependent for employment.

SEC. 5. Whoever, either for himself, or as superintendent, overseer, or other agent of another, employs or has in his employment any person in violation of the provisions of the preceding section, and every parent or guardian who permits any minor to be so employed, shall be punished by a fine of not less than fifty nor more than one hundred dollars for each offense. Said penalty shall extend to corpo-

rations. A certificate of the age of the minor, made by him and by his parent or guardian at the time of his employment in any manufacturing establishment, shall be conclusive evidence of his age upon any trial for a violation of the preceding section.

FOR THE PRESERVATION OF THE HEALTH OF FEMALES.

SECTION 1. Every person or corporation employing females in any manufacturing, mechanical or mercantile establishment in this Commonwealth, shall provide suitable seats for the use of the females so employed, and shall permit the use of such seats by them when they are not necessarily engaged in the active duties for which they are employed.

SEC. 2. A person or corporation violating any of the provisions of this act shall be punished by a fine of not less than ten dollars nor more than thirty dollars for each offense.

PROHIBITING THE LOCKING OF DOORS.

SECTION 1. No outside or inside doors of any building, wherein operatives are employed, shall be so locked, bolted, or otherwise fastened, during the hours of labor, as to prevent free egress.

SEC. 2. Any person, firm, or corporation, being the owner, lessee, or occupant of any such building, who shall, after receiving five days' notice in writing from one of the inspectors of factories and public buildings, neglect or refuse to comply with the provisions of the preceding section, shall forfeit to the use of the Commonwealth not less than ten nor more than fifty dollars.

SEC. 3. The inspector of factories and public buildings shall enforce the provisions of this act.

RELATING TO THE EMPLOYMENT OF MINORS AND WOMEN.

SECTION 1. No minor under eighteen years of age shall be employed in laboring in any mercantile establishment more than sixty hours in any one week.

SEC. 2. Whoever, either for himself, or as superintendent, overseer, or other agent for another, employs or has in his employment any person in violation of the provisions of the preceding section, or who fails to post the notice required in section third, and any parent or guardian who permits any minor to be so employed, shall be punished by a fine of not less than fifty nor more than one hundred dollars for each offense. Said penalty shall extend to corporations. A certificate of age of a minor, made and sworn to by him and by his parent or guardian at the time of his employment in a mercantile establishment, shall be *prima facie* evidence of his age in any trial for a violation of the preceding section.

SEC. 3. Every employer shall post in one or more conspicuous places where such persons are employed a printed notice, stating the number of hours' work required of them, not exceeding ten hours in any one day, on each day of the week; and the employment of any such person for a longer time in any day than that so stated shall be deemed a violation of this act, unless it appears that such employment is to make up for time lost on some previous day of the same week.

SEC. 4. Section four of chapter seventy-four of the public statutes,

as amended by chapter one hundred and fifty-seven of the acts of the year eighteen hundred and eighty-three, shall not apply to mercantile establishments.

RELATING TO THE EMPLOYMENT OF CHILDREN.

SECTION 1. Section one of chapter forty-eight of the public statutes, as amended by chapter two hundred and twenty-four of the acts of the year eighteen hundred and eighty-three, is amended so as to read as follows: *Section 1.* No child under ten years of age shall be employed in any manufacturing, mechanical, or mercantile establishment in this Commonwealth; and no child under twelve years of age shall be so employed at any time during the days in which the public schools are in session in the city or town in which he resides. Any parent or guardian who permits such employment shall for such offense forfeit not less than twenty nor more than fifty dollars for the use of the public schools of the city or town.

RELATIVE TO THE PRINTED NOTICE REQUIRED IN MANUFACTURING ESTABLISHMENTS.

Section four of chapter seventy-four of the public statutes is hereby amended by adding after the word "week" in the eleventh line of said section the following words: The time of commencing and stopping such work, the time to be allowed for stopping and starting machinery, and the time to be taken for dinner; the form of such printed notice shall be furnished by the chief of the district police, and shall be approved by the attorney-general.

RELATIVE TO REPORTS OF ACCIDENTS.

SECTION 1. All manufacturers and manufacturing corporations shall forthwith send to the chief of the Massachusetts district police a written notice of any accident to an employe while at work in any factory or manufacturing establishment operated by them whenever the accident results in the death of said employe, or causes bodily injury of such a nature as to prevent the person injured from returning to his work within four days after the occurrence of the accident.

SEC. 2. Any person or corporation violating any of the provisions of section one of this act shall be punished by a fine not exceeding twenty dollars.

SEC. 3. The chief of the Massachusetts district police shall keep a record of all accidents so reported to him, together with a statement of the name of the person injured, the city or town where the accident occurred, and the cause thereof, and shall include an abstract of said record in his annual report.

OF THE EMPLOYMENT OF CHILDREN.

SECTION 1. No child under ten years of age shall be employed in any manufacturing, mechanical, or mercantile establishment in this Commonwealth; and no child under twelve years of age shall be so employed during the hours in which the public schools are in session in the city or town in which he resides. Any parent or guardian who permits such employment shall for such offense forfeit not less than twenty nor more than fifty dollars for the use of the public schools of the city or town.

SEC. 2. No child under fourteen years of age shall be so employed, except during the vacations of the public schools, unless during the year next preceding such employment he has for at least twenty weeks attended some public or private day school, under teachers approved under section two of chapter forty-seven, by the school committee of the place where such school is kept, which time may be divided, so far as the arrangements of the school term will allow, into two terms, each of ten consecutive weeks; nor shall such employment continue, unless such child in each and every year attends school as herein provided; and no child shall be so employed who does not present a certificate, made by or under the direction of said school committee, of his compliance with the requirements of this section: *provided*, that a regular attendance, during the continuance of such employment, in any school known as a half-time day school may be accepted by said school committee as a substitute for the attendance herein required.

SEC. 3. Every owner, superintendent, or overseer of any such establishment shall require, and keep on file, a certificate of the age and place of birth of every child under sixteen years of age employed therein, so long as such child is so employed, which certificate shall also state—in the case of a child under the age of fourteen years—the amount of his school attendance during the year next preceding such employment. Said certificate shall be signed by a member of the school committee of the place where such attendance has been had, or by some one authorized by such committee; and the form of said certificate shall be furnished by the secretary of the board of education, and shall be approved by the attorney-general.

SEC. 4. Every owner, superintendent, or overseer of any such establishment, who employs, or permits to be employed, any child, in violation of either of the two preceding sections, and every parent or guardian who permits such employment, shall forfeit not less than twenty nor more than fifty dollars, for the use of the public schools of such city or town.

SEC. 5. The truant officers shall, at least once in every school term, and as often as the school committee require, visit the establishments described in section one, in their several cities and towns, and inquire into the situation of the children employed therein, and ascertain whether the provisions of the four preceding sections are duly observed, and report all violations thereof to the school committee.

SEC. 6. The truant officers may demand the names of the children under sixteen years of age employed in such establishments in their several cities and towns, and may require that the certificates of age and school attendance prescribed in section three shall be produced for their inspection; and a failure to produce the same shall be *prima facie* evidence that the employment of such child is illegal.

SEC. 7. Every owner, superintendent, or overseer in any such establishment, who employs, or permits to be employed therein, a child under fourteen years of age, who cannot read and write, while the public schools in the city or town where such child lives are in session, and every parent or guardian who permits such employment, shall, for every such offense, forfeit not less than twenty nor more than fifty dollars, for the use of the public schools of such city or town.

#### OF THE INSPECTION OF BUILDINGS.

SEC. 13. The belting, shafting, gearing, and drums of all factories, when so placed as to be, in the opinion of the inspectors mentioned in section nine of chapter one hundred and three, dangerous to persons

employed therein while engaged in their ordinary duties, shall be, as far as practicable, securely guarded.

No machinery, other than steam engines, in a factory shall be cleaned while running, if objected to in writing by one of said inspectors. All factories shall be well ventilated and kept clean.

Sec. 14. The openings of all hoistways, hatchways, elevators, and well-holes upon every floor of a factory, or mercantile, or public building shall be protected by good and sufficient trap doors, or self-closing hatches and safety-catches, or such other safe-guards as said inspectors direct; and all due diligence shall be used to keep such trap-doors closed at all times, except when in actual use by the occupant of the building having the use and control of the same. All elevator cabs or cars, whether used for freight or passengers, shall be provided with some suitable mechanical device to be approved by the said inspectors, whereby the cab or car will be securely held in the event of accident to the shipper-rope or hoisting machinery, or from any similar cause.

Sec. 15. All factories and manufacturing establishments, three or more stories in height, in which forty or more persons are employed, unless supplied with a sufficient number of tower stairways, shall be supplied with sufficient fire-escapes, properly constructed upon the outside thereof, and connected with the interior by doors or windows, with suitable landings at every story above the first, including the attic, if the same is occupied for work-rooms. Such fire-escapes shall be kept in good repair, and free from obstructions. Fire-escapes existing on the first day of July, in the year eighteen hundred and seventy-seven, need not be changed in consequence of the provisions of this section, unless such change is necessary for the protection of life. Cities may, by ordinance, provide that the provisions of this section relating to fire-escapes shall apply to all buildings three or more stories in height within their limits.

Sec. 16. Every room above the second story in factories or work-shops in which five or more operatives are employed shall, except as provided in the following section, be provided with more than one way of egress by stairways on the inside or outside of the building; and such stairways shall be, as nearly as may be practicable, at opposite ends of the room. Stairways on the outside of the building shall have suitable railed landings at each story above the first, and shall connect with each story of the building by doors or windows opening outwardly; and such doors, windows, and landings shall be kept at all times clear of obstruction.

Sec. 17. A factory or work-shop which, before the fifteenth day of April, in the year eighteen hundred and eighty, had proper fire-escapes, in accordance with section fifteen, need not conform to the provisions of the preceding section, unless since such fire-escapes were constructed there have been such changes in the building or in the number of persons employed therein as to make it, in the opinion of the inspectors, necessary for the protection of life.

Sec. 18. Said inspectors may accept such other provision for escape in case of fire, instead of those required by section sixteen, as may seem to them to be ample for the purpose; but women or children shall not be employed above the second story in a room from which there is only one way of egress.

Sec. 19. All the main doors, both inside and outside in the factories, shall open outwardly, when the inspectors of factories, in writing, so direct. Each story shall be amply supplied with means for extinguishing fire.

SEC. 20. All churches, school-rooms, hotels, halls, theaters, and other buildings used for public assemblies, shall have means of egress approved by said inspectors, and all doors to the main entrances in such buildings shall swing outwardly, if said inspectors, in writing, so direct. No portable seats shall be allowed in the aisles or passageways of any such building during any service or entertainment held therein.

Every building three or more stories in height, in whole or in part used, occupied, leased, or rented, or designed to be used, occupied, leased, or rented for a tenement to be occupied by more than four families, or a lodging-house, shall be provided with a sufficient means of escape in case of fire, to be approved by the inspector of factories and public buildings.

SEC. 21. No explosive or inflammable compound shall be used in any factory in such place or manner as to obstruct or render hazardous the egress of operatives in case of fire.

SEC. 22. Any person or corporation, being the owner, lessee, or occupant of a manufacturing establishment, factory, or workshop, or owning or controlling the use of any building or room mentioned in section twenty, shall, for the violation of any provision of sections thirteen to twenty-one inclusive, be punished by a fine of not less than fifty nor more than five hundred dollars, and shall also be liable for all damages suffered by any employe by reason of such violation; but no criminal prosecution shall be made for such violation until four weeks after notice in writing by an inspector of factories and public buildings of any changes necessary to be made to comply with the provisions of said sections has been sent by mail or delivered to such person or corporation; nor then, if in the meantime such changes have been made in accordance with such modification. Notice to one member of a firm, or to the clerk or treasurer of a corporation, owning, leasing, occupying, or controlling, as aforesaid, shall be deemed a sufficient notice under this section to all the members of such firm or to such corporation. Nothing in this section shall be so construed as to prohibit a person injured from bringing an action to recover damages for his injuries.

#### TO PROVIDE AGAINST THE USE OF UNSAFE ELEVATORS.

If any elevator, whether used for freight or passengers, shall, in the judgment of the inspector of factories and public buildings of the district in which such elevator is used, or, in the city of Boston, of the inspector of buildings of said city, be unsafe or dangerous to use, or has not been constructed in the manner required by law, the said inspector shall immediately placard conspicuously upon the entrance to or door of the cab or car of such elevator a notice of its dangerous condition, and prohibit the use of such elevator until made safe to the satisfaction of said inspector. Any person removing such notice or operating such elevator while such notice is placarded, as aforesaid, without authority from said inspector, shall be punished by a fine of not less than ten nor more than fifty dollars for each offense.

#### COMMUNICATION BETWEEN ROOMS.

SECTION 1. In every manufacturing establishment where the machinery used is propelled by steam communication shall be provided between each room where such machinery is placed and the room where the engineer is stationed by means of speaking tubes, electric



bells, or such other means as shall be satisfactory to the inspectors of factories: *provided*, that in the opinion of the inspectors such communication is necessary.

SEC. 2. The inspectors of factories shall enforce the provisions of his act, and any person, firm or corporation, being the occupant of any manufacturing establishment, or controlling the use of any building or room where machinery propelled by steam is used, violating the provisions of this act shall forfeit to the use of the commonwealth not less than twenty-five nor more than one hundred dollars; but no prosecution shall be made for such violation until four weeks after notice in writing by an inspector has been sent by mail to such person, firm or corporation of any changes necessary to be made to comply with the provisions of this act, nor then if in the meantime such changes have been made in accordance with such notification.

#### TO SECURE PROPER SANITARY PROVISIONS.

SECTION 1. Every person employing five or more persons in a factory, or employing children, young persons or women, five or more in number, in a workshop, shall keep such a factory or workshop in a cleanly state and free from effluvia arising from any drain, privy or other nuisance.

SEC. 2. Every person employing five or more persons in a factory, or employing children, young persons or women, five or more in number, in a workshop, shall provide, within reasonable access, a sufficient number of proper water-closets, earth-closets or privies, for the reasonable use of all persons so employed; and wherever male and female persons are employed in the same factory or workshop a sufficient number of separate and distinct water-closets, earth-closets or privies shall be provided for the use of each sex, and shall be plainly designated, and no person shall be allowed to use any such closet or privy assigned to persons of the other sex.

SEC. 3. When it appears to an inspector of factories that any act, neglect or default in relation to any drain, water-closet, earth-closet, privy, ash-pit, water supply, nuisance or other matter in a factory or in a workshop, included under section one of this act, is punishable or remediable under chapter eighty of the public statutes, or under any law of the commonwealth relating to the preservation of the public health, but not under this act, such inspector shall give notice in writing of such act, neglect or default to the board of health of the city or town within which such factory or workshop is situate, and it shall thereupon be the duty of such board of health to make inquiry into the subject of the notice, and to take such action thereon in the way of enforcing any provision of law within its authority as the facts may call for.

SEC. 4. Any person violating any provision of sections one and two of this act shall be punished by fine not exceeding one hundred dollars; but no criminal prosecution shall be made for such violation until four weeks after notice in writing by an inspector of factories of the changes necessary to be made to comply with the provisions of said sections has been sent by mail or delivered to such person, nor then if in the meantime such changes have been made in accordance with such notification. A notice shall be deemed a sufficient notice under this section to all the members of a firm or to a corporation when given to one member of such firm, or to the clerk, cashier, secretary, agent or any other officer having charge of the business of such corporation, or

to its attorney; and in the case of a foreign corporation notice to the officer having the charge of such factory or workshop shall be sufficient; and such officer shall be personally liable for the amount of any fine in case a judgment against the corporation is returned unsatisfied.

**PROPER VENTILATION OF FACTORIES AND WORKSHOPS.**

**SECTION 1.** Every factory in which five or more persons are employed, and every workshop in which children, young persons or women, five or more in number, are employed, shall be so ventilated while work is carried on therein that the air shall not become so exhausted as to be injurious to the health of the persons employed therein, and shall also be so ventilated as to render harmless, so far as is practicable, all the gases, vapors, dust or other impurities generated in the course of the manufacturing process or handicraft carried on therein that may be injurious to health.

**SEC. 2.** If in a factory or workshop included in section one of this act any process is carried on by which dust is generated and inhaled to an injurious extent by the persons employed therein, and it appears to an inspector of factories that such inhalation could be to a great extent prevented by the use of a fan or other mechanical means, and that the same could be provided without excessive expense, such inspector may direct a fan or other mechanical means of a proper construction to be provided within a reasonable time, and such fan or other mechanical means shall be so provided, maintained and used.

**SEC. 3.** Any person employing labor in a factory or workshop and violating any provision of this act shall be punished by fine not exceeding one hundred dollars; but no criminal prosecution shall be made for any such violation unless such employer shall have neglected for four weeks to make such changes in his factory or workshop as shall have been ordered by an inspector of factories by a notice in writing delivered to or received by such employer.

**TO PROHIBIT THE EMPLOYMENT OF CHILDREN IN CLEANING DANGEROUS MACHINERY.**

**SECTION 1.** No child under the age of fourteen years shall be permitted to clean any part of the machinery in a factory while such part is in motion by the aid of steam, water or other mechanical power, or to clean any part of such machinery that is in dangerous proximity to such moving part.

**SEC. 2.** Whoever, either for himself or as superintendent, overseer or other agent of another, violates the provisions of the preceding section shall be punished by a fine of not less than fifty nor more than one hundred dollars for each offense.

**UNIFORM AND PROPER MEAL TIMES FOR CHILDREN, YOUNG PERSONS AND WOMEN.**

**SECTION 1.** All children, young persons and women, five or more in number, employed in the same factory, shall be allowed their meal time or meal times at the same time: *provided, however,* that any children, young persons or women who begin work in such factory at a later hour in the morning than the other children, young persons and women employed therein, may be allowed their meal time or meal times at a different time; but no such children, young persons or women

shall be employed during the regular meal hour in tending the machines or doing the work of any other children, young persons or women in addition to their own.

SEC. 2. No child, young person or woman shall be employed in a factory or workshop in which five or more children, young persons and women are employed for more than six hours at one time without an interval of at least half an hour for a meal: *provided, however*, that a child, young person or woman may be so employed for not more than six and one-half hours at one time if such employment ends at an hour not later than one o'clock in the afternoon, and if such child, young person or woman is then dismissed from the factory or workshop for the remainder of the day; or for not more than seven and one-half hours at one time if such child, young person or woman is allowed sufficient opportunity for eating a lunch during the continuance of such employment, and if such employment ends at an hour not later than two o'clock in the afternoon, and such child, young person or woman is then dismissed from the factory or workshop for the remainder of the day.

SEC. 3. This act shall not apply to iron works, glass works, paper mills, letter-press printing establishments, print works, bleaching works or dyeing works; and the chief of the district police, where it is proved to his satisfaction that in any other class of factories or workshops it is necessary, by reason of the continuous nature of the process, or of special circumstances affecting such class, to exempt such class from the provisions of this act, and that such exemption can be made without injury to the health of the children, young persons and women affected thereby, may, with the approval of the governor of the Commonwealth, issue a certificate granting such exemption, public notice whereof shall be given in the manner directed by said chief, without expense to the Commonwealth.

SEC. 4. The following expressions used in this act shall have the following meanings: The expression "iron works" means any mill, forge, or other premises in or on which any process is carried on for converting iron into malleable iron, steel, or tin plate, or for otherwise making or converting steel. The expression "glass works" means any premises in which the manufacture of glass is carried on. The expression "paper mills" means any premises in which the manufacture of paper is carried on. The expression "letter-press printing establishments" means any premises in which the process of letter-press printing is carried on. The expression "print works" means any premises in which is carried on the process of printing figures, patterns, or designs upon any cotton, linen, woolen, worsted, or silken yarn or cloth, or upon any woven or felted fabric not being paper. The expression "bleaching works" means any premises in which the process of bleaching any yarn or cloth of any material is carried on; the expression "dyeing works" means any premises in which the process of dyeing any yarn or cloth of any material is carried on.

SEC. 5. Whoever, either for himself or as superintendent, overseer, or other agent of another, violates any of the provisions of this act shall be punished by fine of not less than fifty nor more than one hundred dollars: *provided, however*, that if any minor under eighteen years of age, or any woman, shall, without the orders, consent, or knowledge of the employer, or of any superintendent, overseer, or other agent of the employer, labor in a factory or workshop during any part of any time allowed for dinner or for other meals in such factory or workshop, according to the notice required by law, and if a copy of such notice

was posted in a conspicuous place in the room where such labor took place, together with a rule of the establishment forbidding such minor or woman to labor during such time, then neither the employer, nor any superintendent, overseer, or other agent of the employer, shall be held responsible for such labor.

#### EMPLOYMENT OF MINORS AND WOMEN.

SECTION 1. Section four of chapter seventy-four of the public statutes is hereby amended in the third, fourth, and fifth lines of said section by striking out the words "when it is necessary to make repairs to prevent the interruption of the ordinary running of the machinery," and by inserting in place thereof the words, as hereinafter provided in this section, in the eleventh line of said section after the word "week," by inserting the words, the hours of commencing and stopping such work, and the hours when the time or times allowed for dinner or for other meals begins and ends, or in the case of establishments exempted from the provisions of chapter two hundred and fifteen of the acts of the year eighteen hundred and eighty-seven, the time, if any, allowed for dinner and for other meals; the printed form of such notice shall be furnished by the chief of the district police, and shall be approved by the attorney-general; and at the end of said section after the word "employment" by adding the following: But no stopping of machinery for a shorter continuous time than thirty minutes shall authorize such over-time employment, nor shall any such stopping authorize such employment, unless or until a written report of the day and hour of its occurrence, with its duration, is sent to the chief of the district police, or to the inspector of factories for the district. Any person who makes a false report of such stopping of machinery shall be punished by fine of not less than fifty nor more than one hundred dollars; so that the said section as amended hereby, and by chapter one hundred and fifty-seven of the acts of the year eighteen hundred and eighty-three, and by section four of chapter two hundred and seventy-five of the acts of the year eighteen hundred and eighty-four shall read as follows: No minor under eighteen years of age and no woman shall be employed in laboring in any manufacturing or mechanical establishment more than ten hours in any one day, except as hereinafter provided in this section, or when a different apportionment of the hours of labor is made for the sole purpose of making a shorter day's work for one day of the week; and in no case shall the hours of labor exceed sixty in a week. Every employer shall post in a conspicuous place in every room where such persons are employed a printed notice stating the number of hours' work required of them on each day of the week, the hours of commencing and stopping such work, and the hours when the time or times allowed for dinner or for other meals begins and ends, or in the case of establishments exempted from the provisions of chapter two hundred and fifteen of the acts of the year 1887, the time, if any, allowed for dinner and other meals; the printed form of such notice shall be furnished by the chief of the district police, and shall be approved by the attorney-general; and the employment of any such person for a longer time in any day than that so stated shall be deemed a violation of this section, unless it appears that such employment is to make up for time lost on some previous day of the same week in consequence of the stopping of machinery upon which such person was employed or dependent for

employment. But no stopping of machinery for a shorter continuous time than thirty minutes shall authorize such over-time employment. nor shall any such stopping authorize such employment unless or until a written report of the day and hour of its occurrence, with its duration, is sent to the chief of the district police or to the inspector of factories for the district. Any person who makes a false report of such stopping of machinery shall be punished by fine of not less than fifty nor more than one hundred dollars. If any minor under eighteen years of age, or any woman, shall, without the orders, consent, or knowledge of the employer, or of any superintendent, overseer, or other agent of the employer, labor in a manufacturing or mechanical establishment during any part of any time allowed for dinner or for other meals in such establishment, according to the notice above mentioned, and if a copy of such notice was posted in a conspicuous place in the room where such labor took place, together with a rule of the establishment forbidding such minor or woman to labor during such time, then neither the employer, nor any superintendent, overseer, or other agent of the employer, shall be held responsible for such employment.

#### WEEKLY PAYMENT OF WAGES BY CORPORATIONS.

SECTION 1. Section one of chapter eighty-seven of the acts of the year eighteen hundred and eighty-six is hereby amended so as to read as follows: *Section 1.* Every manufacturing, mining or quarrying, mercantile, railroad, street railway, telegraph and telephone corporation, every incorporated express company and water company, shall pay weekly each and every employe engaged in its business the wages earned by such employe to within six days of the date of said payment; and every incorporated city shall so pay every employe engaged in its business, unless such employe shall request in writing to be paid in some different manner; and every municipal corporation not a city, and every incorporated county shall so pay every employe engaged in its business if so required by him: *provided, however,* that if at any time of payment any employe shall be absent from his regular place of labor he shall be entitled to said payment at any time thereafter upon demand. The provisions of this section shall not apply to any employe of a co-operative corporation or association who is a stockholder therein, unless such employe shall request such corporation to pay him weekly: and *provided, also,* that the railroad commissioners, after a hearing, may exempt any railroad corporation from paying weekly any of its employes who, in the opinion of the commissioners, prefer less frequent payments, and when, in their opinion, the interests of the public and such employes will not be injured thereby.

SEC. 2. Section two of said chapter is hereby amended by inserting at the end thereof the following: The chief of the district police, or any state inspector of factories and public buildings, may bring a complaint against any corporation which neglects to comply with the provisions of this act for a period of two weeks after having been notified in writing by such chief or inspector that such complaint will be brought. On the trial of such complaint such corporation shall not be allowed to set up any defense for a failure to pay weekly any employe engaged in its business the wages earned by such employe to within six days of the date of said payment, other than the attachment of such wages by the trustee process, or a valid assignment thereof, or a valid set-off against the same, or the absence of such employe from his

regular place of labor at the time of payment, or an actual tender to such employe at the time of payment of the wages so earned by him. No assignment of future wages payable weekly under the provisions of this act shall be valid if made to the corporation from whom such wages are to become due, or to any person on behalf of such corporation, or if made or procured to be made to any person for the purpose of relieving such corporation from the obligation to pay weekly under the provisions of this act.

**MINORS WHO CANNOT READ AND WRITE IN THE ENGLISH LANGUAGE.**

SECTION 1. Every owner, superintendent or overseer of any manufacturing, mechanical or mercantile establishment who employs, or permits to be employed therein, a minor under fourteen years of age who cannot read and write in the English language, except during the vacation of the public schools in the city or town where such minor lives, and every parent or guardian who permits such employment, shall, for every such offense, forfeit not less than twenty nor more than fifty dollars, for the use of the public schools of such city or town.

SEC. 2. Every person who regularly employs, or permits to be employed, a minor fourteen years of age, or over, who cannot read and write in the English language, providing such minor has been, since reaching the age of fourteen, for one year continuously a resident of a city or town in this Commonwealth wherein public evening schools are maintained, and is not a regular attendant of a day or evening school, shall, for every such offense, forfeit not less than fifty nor more than one hundred dollars, for the use of the evening schools of such city or town.

SEC. 3. Whenever it appears that the labor of any minor who would be debarred from employment under section two of this act is necessary for the support of the family to which said minor belongs, or for his own support, the school committee of said city or town may, in the exercise of their discretion, issue a permit authorizing the employment of such minor within such time or times as they may fix, and the provisions of said section two shall not apply to such minor so long as said permit is in force.

SEC. 4. Two weeks next before the opening of each term of the evening schools, the school committee shall, by poster posted in three or more public places of said city or town, give notice of the location of said schools, the date of the commencement of the term, the evenings of the week during which said schools shall be kept, the provisions of section two of this act as to forfeiture for non-compliance with said section, and such regulations as to attendance as they shall deem proper.

**RELATING TO THE DUTIES AND POWERS OF INSPECTORS OF FACTORIES AND PUBLIC BUILDINGS.**

SECTION 1. Section ten of chapter one hundred and three of the public statutes is hereby amended so as to read as follows: *Section 10.* Such inspectors shall enforce the provisions of sections thirteen to twenty-two, inclusive, of chapter one hundred and four, except as therein specified, and the various provisions of law relating to the employment of women and minors in manufacturing, mechanical or

mercantile establishments, and the employment of children, young persons or women in factories or workshops, and the ventilation of factories or workshops, and the securing of proper sanitary provisions in factories or workshops; and for this purpose said inspectors may enter all buildings used for public or manufacturing purposes, or for factories or workshops, examine the methods of protection from accident, the means of escape from fire, the sanitary provisions and the means of ventilation, and may make investigations as to the employment of children, young persons and women.

## NEW JERSEY.

### LAW RELATING TO THE EMPLOYMENT OF CHILDREN.

1. *Be it enacted by the Senate and General Assembly of the State of New Jersey*, That after the fourth day of July, one thousand eight hundred and eighty-three, no boy under the age of twelve years, nor any girl under fourteen years of age, shall be employed in any factory, workshop, mine, or establishment where the manufacture of any goods whatever is carried on.

2. *And be it enacted*, That on and after the first day of July, one thousand eight hundred and eighty-four, no child between the ages of twelve and fifteen years shall be employed in any factory, workshop, mine, or establishment where the manufacture of any kind of goods whatever is carried on, unless such child shall have attended, within twelve months immediately preceding such employment, some public day or night school, or some well recognized private school; such attendance to be for five days or evenings every week during a period of at least twelve consecutive weeks, which may be divided into two terms of six consecutive weeks each, so far as the arrangement of school terms will permit, and unless such child, or its parents or guardian, shall have presented to the manufacturer, merchant or other employer seeking to employ such child, a certificate giving the name of his parents or guardian, the name and number of the schools attended, and the number of weeks in attendance, such certificate to be signed by the teacher or teachers of such child; *provided*, that in case the age of the child be not known, such teacher shall certify that the age given is the true age, to the best of his or her knowledge and belief; *provided*, that in case of orphan children, where necessity may seem to require, the guardian or others having charge of the same may, upon application to the inspector provided for in this act, receive from him a permit for the employment of such child or children, under such regulations as the said inspector may prescribe.

3. *And be it enacted*, That no child or children under the age of fourteen years shall be employed in any factory, workshop, mill or establishment where the manufacture of any kind of goods is carried on, for a longer period than an average of ten hours in a day, or sixty hours in a week.

4. *And be it enacted*, That every manufacturer, merchant or other employer employing any person contrary to the provisions of this act, or who shall be guilty of any violation hereof, shall be guilty of misdemeanor, and upon conviction be fined for each offense in a sum of not less than fifty nor more than one hundred dollars, and in default

of payment of the same shall be imprisoned in the county jail for not less than thirty nor more than ninety days; and that every head of a family, parent or guardian, who knowingly permits the employment of such children shall be likewise subject to a fine of not more than twenty-five nor less than ten dollars for every child so employed, and for each offense, and in default of such payment shall be imprisoned in the county jail for a period of not less than ten days nor more than twenty days; a certificate of the age of the minor, made by him or her, and by his or her parents or guardian at the time of employment, shall be conclusive evidence of the age of such minor upon any trial for the violation of this act; *provided*, that the provisions in this act in relation to the hours of employment shall not apply to or affect any person engaged in preserving perishable goods in fruit-canning establishments.

5. *And be it enacted*, That the governor shall, immediately after the passage of this bill, appoint, with the advice and consent of the senate, some suitable person, who shall be a resident and citizen of this state, as inspector, at a salary of twelve hundred dollars per year, to be paid monthly, whose term of office shall be for three years; the said inspector shall be empowered to visit and inspect, at all reasonable hours and as often as practicable, the factories, workshops, mines and other establishments in the state where the manufacture and sale of any kind of goods is carried on, and to report to the governor of this state, on or before the thirty-first day of October in each year; it shall also be the duty of said inspector to enforce the provisions of this act and prosecute all violations of the same in any recorders' courts of cities, and justices of the peace, or other courts of competent jurisdiction in the state.

6. *And be it enacted*, That all necessary expenses incurred by said inspector in the discharge of his duty shall be paid from the funds of the state upon the presentation of proper vouchers of the same; *provided*, that not more than five hundred dollars shall be expended by him in any one year.

7. *And be it enacted*, That all fines collected under this act shall inure to the benefit of the school fund of the district where the offense has been committed.

#### A SUPPLEMENTARY ACT.

That the inspector and his deputies shall have power to demand a certificate of physical fitness from some regular practicing physician in the case of minors who may seem physically unable to work, and shall have power to prohibit the employment of any minor that cannot obtain such a certificate.

That any parent or guardian who, when so required by the inspector, or one of his deputies, shall furnish to such inspector, or deputy, a certificate from the office of registration of births, or in the absence of such certificate, an affidavit or affidavits of the age of such minor; and if any one shall knowingly swear falsely in any such affidavit, the person or persons so swearing shall be guilty of perjury and liable to indictment and punishment accordingly.

That section four of the act to which this is a supplement shall be amended to read as follows:

[4. *And be it enacted*, That every manufacturer, merchant or other employer, employing any person contrary to the provisions of this act, or who shall be guilty of any violation thereof, shall be liable to a pen-



alty of fifty dollars for each offense, to be recovered in an action of debt in any district court in any city, or before any justice of the peace having due jurisdiction, and that any parent or guardian, who knowingly permits the employment of such child or children, shall be liable in like action to a penalty of not more than fifty dollars, as the court shall fix; that such action shall be prosecuted in the name of the inspector; the trial shall proceed as other actions of debt, and the first process shall be a summons returnable in not less than five d.ys or more than ten days after issue, and it shall not be necessary to indorse the same as in *qui tam* actions; the finding of the court shall be that the defendant has or has not, as the case may be, incurred the penalty claimed in the demand of the plaintiff, and judgment shall be given accordingly; in case an execution shall issue and be returned unsatisfied, the court, on application, after notice to the defendant, may award an execution to take the body of the defendant, and in case such a defendant is committed under such an execution, he shall not be discharged under the insolvent laws of the state, but shall only be discharged by the court making the order for the body execution, or one of the justices of the supreme court, when such court or justice shall be satisfied that further confinement will not accomplish the payment of the judgment and costs; an affidavit of the age of any minor made by its parent or guardian, at the time of its employment, shall be conclusive evidence of the age of such minor, upon any trial against a manufacturer or employer for the violation of this act, but any parent or guardian that shall knowingly swear falsely in such affidavit shall be guilty of perjury, and the inspector or deputy inspector shall be authorized, in case they shall find any minor employed under any false affidavit given as aforesaid, to order and compel such minor to desist from work; the provisions of this act in relation to the hours of employment shall not apply to or affect any person engaged in preserving perishable goods in fruit-canning establishments.]

#### COMPULSORY EDUCATION LAW.

1. *Be it enacted by the Senate and General Assembly of the State of New Jersey*, That all parents, and those who have care of children, shall instruct them or cause them to be instructed in spelling, reading, writing, English grammar, geography and arithmetic; and every parent, guardian or other person having control and charge of any child or children between the ages of seven and twelve years shall be required to send any such child or children to a public day school for a period of at least twenty weeks in each year, eight weeks, at least, of which attendance shall be consecutive, unless such child or children are excused from such attendance by the board of the school district in which such parents or guardians reside, upon its being shown to their satisfaction that the bodily or mental condition of such child or children has been such as to prevent his, her or their attendance at school, or that such child or children are taught in a private school, or at home, by some qualified person or persons, in such branches as are usually taught in primary schools.

2. *And be it enacted*, That no child under the age of fifteen years shall be employed by any person, company or corporation to labor in any business whatever, unless such child shall have attended, within twelve months immediately preceding such employment, some public day or night school, or some well recognized private school; such attendance to be for five days or evenings every week during a period of at

least twelve consecutive weeks, which may be divided into two terms of six consecutive weeks each, so far as the arrangement of school terms will permit, and unless such child, or his or her parents or guardian, shall have complied with the provisions of the act approved March fifth, eighteen hundred and eighty-three, limiting the employment hours of the labor of children.

3. *And be it enacted*, That every parent, guardian or other person having charge or control of any child from twelve to sixteen years of age, who has been temporarily discharged from employment in any business in order to be afforded an opportunity to receive instruction or schooling, shall send such child to some public or private day school for the period for which such child shall have been discharged, unless such child shall have been excused from such attendance by the inspector of factories and workshops, or by the board of the school district for reasons as stated in section one hereof.

4. *And be it enacted*, That in case any parent, guardian or other person shall fail to comply with the provisions of sections one and three of this act, such parent, guardian or other person shall be deemed guilty of a misdemeanor, and shall, on conviction, be liable to a fine of not less than ten dollars nor more than twenty-five dollars for the first offense, and of not less than twenty-five dollars for each subsequent offense, or to imprisonment for not less than one month or more than three; the said fines, when paid, to be added to the public school money of said school district in which the offense occurred.

5. *And be it enacted*, That all children between the ages of seven and fifteen years, who are habitual truants from school, or who, while in attendance at any public school, are incorrigible, vicious or immoral in conduct, and all children between the said ages who absent themselves habitually from school, and habitually wander about streets and public places during school hours, having no business or lawful occupation, shall be deemed juvenile disorderly persons and subject to the provisions of this act.

6. *And be it enacted*, That in all cities having a duly organized police force it shall be the duty of the police authority, at the request of the inspectors of factories and workshops, or of the school authority, to detail one or more members of said force to assist in the enforcement of this act; and in districts having no regular police force, subject to this act, it shall be the duty of the board of education, or the school district officers, to designate one or more constables of said city, township or village, whose duty it shall be to assist in the enforcement of this act, as occasion may require, and said board of education shall fix and determine the compensation to be paid such police officer or constable for the performance of his duties under the act; members of any police force or any constable designated to assist in the enforcement of this act, as provided in this section, shall be known as truant officers: *provided*, that in districts where no constable resides, the said board shall have power to appoint some other suitable person as truant officer.

7. *And be it enacted*, That it shall be the duty of any such truant officer or officers detailed to enforce the provisions of this act to examine into all cases of truancy, when requested so to do by the inspectors of factories and workshops, or by a district school board, and to warn such truants, their parents or guardians, in writing, of the final consequences of truancy, if persisted in, and also to notify the parent, guardian or other person having the legal charge and control of any juvenile disorderly person, that the said person is not attending any school,

and to require said parent, guardian or other person to cause the said child to attend some recognized school within five days from said notice, and it shall be the duty of said parent, guardian or other person having the legal charge and control of said child to cause the attendance of said child at some recognized school; if said parent, guardian or other person having the legal charge and control of said child shall willfully refuse, fail or neglect to cause said child to attend some recognized school, it shall be the duty of said officer to make or cause to be made a complaint against said parent, guardian or other person having the legal control and charge of such child, in any court of competent jurisdiction in the school district in which the offense occurred, for such refusal or neglect, and upon conviction thereof said parent, guardian or other person, as the case may be, shall be punished by a fine of not less than ten dollars nor more than twenty-five dollars, or the court may, in its discretion, require the person so convicted to give bond in the penal sum of one hundred dollars, with one or more sureties, to be approved by said court, conditioned that said person so convicted shall cause the child or children under his or her legal charge or control to attend some recognized school within five days thereafter, and to remain at said school during the term prescribed by law: *provided*, that if said parent or guardian, or other person in charge of said child, shall prove inability to cause said child to attend said recognized school, then said parent or guardian, or other person, shall be discharged. and said court shall, upon complaint of said truant officer or other person that said child is a juvenile disorderly person, as described in section five of this act, proceed to hear such complaint, and if said court shall determine that said child is a juvenile disorderly person within the meaning of this act, then said court shall thereupon sentence said child to a juvenile reformatory until such child shall arrive at the age of sixteen years, unless sooner discharged by the board of control of said juvenile reformatory: *provided, however*, that such sentence may be suspended, in the discretion of said court, for such time as the child shall regularly attend school and properly deport himself or herself; it is further provided, that if for any cause the parent or guardian, or other person having charge of any juvenile disorderly person as defined in this act, shall fail to cause such juvenile disorderly person to attend said recognized school, then complaint against such juvenile disorderly person may be made, heard, tried and determined, in the same manner as is provided for in case the parent pleads inability to cause said juvenile disorderly person to attend said recognized school; and it is further provided, that no child under the age of nine years shall be sent to a juvenile reformatory under the provisions of this act.

8. *And be it enacted*, That it shall be the duty of the officers empowered, detailed, or appointed under the provisions of this act to assist in the enforcement thereof, to institute, or cause to be instituted, proceedings against any parent, guardian, or other person having legal charge and control of any child, or any person, company, or corporation violating any of the provisions of the sections of this act; *provided*, this law shall not be operative in those school districts of the State where there are not sufficient accommodations to seat the children compelled to attend school under the provisions of this act; and that no prosecution shall be instituted against any parent, guardian, or child unless they have received due notification from an officer empowered under this act that they are acting in violation of the provisions of this act.

9. *And be it enacted*, That, when there is not within the distance of two miles from the factory or shop in which a child under the age of

fifteen years is employed, or from the residence of the child, a recognized efficient school, attendance at a school temporarily approved by an inspector of factories and workshops shall, for the purposes of this act, be deemed attendance at a recognized efficient school, and the inspector of factories shall immediately report to the education department every case of the approval of a school by him under this section.

10. *And be it enacted*, That two weeks' attendance of children between twelve and fifteen years of age at a recognized half-time or evening school shall, for all purposes of this act, be counted as one week at a day school.

11. *And be it enacted*, That when any of the provisions of this act are violated by a corporation, proceedings may be had against any of the officers or agents of said corporation who, in any way, participate in or are cognizant of such violation by the corporation of which they are the officers or agents, and said officers or agents shall be subject to the same penalties as individuals similarly offending.

#### GENERAL FACTORY ACT.

1. *Be it enacted by the Senate and General Assembly of the State of New Jersey*, That any person or corporation engaged in manufacturing, which requires from persons in his or its employ, under penalty of forfeiture of a part of the wages earned by them, a notice of intention to leave such employ, shall be liable to the payment of a like forfeiture if he or it discharges without similar notice a person in such employ, unless in case of a general suspension of labor in his or its shop or factory.

2. *And be it enacted*, That all accidents in workshops, factories, or mines, which result in death, shall be reported at once by the occupier to the inspector of workshops at Trenton, and the city or district physician, where one is employed as such, which notice may be given by mail.

3. *And be it enacted*, That the belting, shafting, gearing, and drums in all factories and workshops, when so placed as to be dangerous to persons employed therein while engaged in their ordinary duties, shall be securely guarded when practicable (possible); if otherwise, then notice of its danger shall be conspicuously posted in the factory or workshop.

4. *And be it enacted*, That no minor, under eighteen years of age, or woman, shall be required to clean any part of the mill gearing or machinery in any factory or workshop while the same is in motion, or work between the fixed or traversing part of any machine while it is in motion by the action of steam, water, or other mechanical power.

5. *And be it enacted*, That the openings of all hoistways, hatchways, elevators, and well-holes upon every floor of a factory, or mercantile, or public building, shall be protected by good and sufficient trap-doors or self-closing hatches and safety-catches, or strong guard-rails at least three feet high, and all due diligence shall be used to keep such trap-doors closed at all times, except when in actual use by the occupant of the building having the use and control of the same.

6. *And be it enacted*, That no explosive or inflammable compound shall be used in any factory, in such place or manner as to obstruct or render hazardous the egress of operatives in case of fire.

7. *And be it enacted*, That no minor under the age of sixteen shall be employed in any manufacturing, mercantile, or mechanical establishment more than ten hours a day or sixty hours a week.

8. *And be it enacted*, That suitable places shall be provided in all factories and workshops where girls or women are employed, where unclean work of any kind has to be performed, for such girls or women to wash and dress, and that stairs in use by female employes in all factories and workshops be properly screened.

9. *And be it enacted*, That separate water-closets be provided for the use of employes of either sex in all manufacturing, mercantile, and mechanical establishments where persons of both sexes are employed.

10. *And be it enacted*, That where the factories or workshops appear so overcrowded that, in the opinion of the inspectors of factories, there is danger to health, the inspectors shall have power, after being supported in their opinion by some reputable resident physician, to prohibit such overcrowding.

11. *And be it enacted*, That the inspector of factories shall have power to order a fan or other mechanical means of proper construction, if practicable, for the purpose of preventing the inhalation of dust in establishments where any process is carried on by which dust is generated and inhaled by the workers to an injurious extent.

12. *And be it enacted*, That all factories and mines be ventilated so as to render harmless all impurities as near as may be.

13. *And be it enacted*, That no cellar, room, or place shall be occupied as a bake-house, which is less than one-half of its height above the level of the street, footway, or ground adjoining the same, unless the following regulations are complied with: First, no water-closet, earth-closet privy, or ash-pit shall be within or communicate directly with the bake-house; second, no drain or pipe for carrying off sewage or other impure matter shall have an opening within a bake-house, unless such drain or pipe be trapped with a six-inch water seal, both within and without the wall of the bake-house, and have a ventilating pipe of one-half the size of drain pipe between the wall and the outer trap, and which ventilating pipe shall run two feet above the roof of building.

14. *And be it enacted*, That the sleeping places for workmen and others employed in bake-houses shall be separate and distinct from the places used for the making of bread.

15. *And be it enacted*, That any person or corporation, being the owner, lessee, or occupant of any manufacturing establishment, factory, mine, workshop, or store, or owning or controlling the use of any building or room, shall, for the willful violation of any provision of this act, except sections one and two, be liable to a penalty of fifty dollars for each offense, to be recovered in an action of debt in any district court in any city, or before any justice of the peace having due jurisdiction, and that any employe who shall be guilty of any violation of the provisions of this act shall be liable in a like action to a penalty of fifty dollars; that such action shall be prosecuted by and in the name of the inspector of factories; the trial shall proceed as other actions of debt and the first process shall be a summons returnable in not less than five days or more than ten after issue, and it shall not be necessary to indorse the same as in *qui tam* actions; the finding of the court shall be that the defendant has or has not, as the case may be, incurred the penalty claimed in the demand of the plaintiff, and judgment shall be given accordingly; in case an execution shall issue and be returned unsatisfied, the court, on application, after notice to the defendant, may award an execution to take the body of the defendant, and in case such defendant is committed under such an execution, he shall not be discharged under the insolvent laws of the State, but shall only be dis-

charged by the court making the order for the body execution, or one of the justices of the supreme court, when such court or justice shall be satisfied that further confinement will not accomplish the payment of the judgment and costs; *provided*, nothing herein shall subject any owner of a building or premises to any penalty unless he shall be the proprietor of the business conducted therein.

SUPPLEMENTARY ACT.

1. *Be it enacted by the Senate and General Assembly of the State of New Jersey*, That every person shall, within one month after he begins to occupy a factory or workshop, notify one of the factory inspectors of such occupancy.

2. *And be it enacted*, That section two of the act to which this is a supplement be amended to read, viz : 2. *And be it enacted*, That all accidents in workshops, factories or mines, which prevent the injured person or persons from returning to work within two weeks, or which result in death, shall, within twenty-four hours after the expiration of such two weeks, or after the death, as the case may be, be reported by the person in charge of such workshop, factory or mine to one of the factory inspectors and to the city or district physician, where there is such an officer, which notice may be given by mail.

3. *And be it enacted*, That section six of the act to which this is a supplement be amended to read as follows: *And be it enacted*, That no minor or woman shall clean any part of the mill gearing or machinery in any factory or workshop while the same is in motion, or work between the fixed or traversing parts of any machine while it is in motion by the action of steam, water or other mechanical power.

4. *And be it enacted*, That all factories, manufacturing establishments or workshops of two or more stories in height, in which thirty (30) or more persons are employed above the first floor thereof, shall be provided with one or (if the proper officials deem necessary) more outside iron fire-escapes, not less than six feet in length and three feet in width, properly and safely constructed, guarded by iron railings not less than three feet in height, and taking in at least two windows at each story, and connected with the interior by easily accessible and unobstructed openings; and the said fire-escapes shall connect by iron stairs, not less than twenty-four inches wide, the steps to be not less than six inches tread, placed at not more than an angle of forty-five degrees slant, and protected by a well secured hand rail on both sides, with a twelve-inch wide drop ladder from the lower platform reaching to the ground.

5. *And be it enacted*, That for every twenty persons employed on every floor above the second floor of every factory and workshop there shall be one rope or portable fire-escape, and that each story shall be amply supplied with means for extinguishing fire.

6. *And be it enacted*, That all the main doors, both inside and outside, in factories shall open outwardly, when the inspectors of factories, in writing, so direct, and that no outside or inside door of any building wherein operatives are employed shall be so locked, bolted, or otherwise fastened during the hours of labor as to prevent egress.

7. *And be it enacted*, That no minor below the age of sixteen shall be employed at any work dangerous to health without a certificate of fitness from a reputable physician.

8. *And be it enacted*, That factories and workshops in which women and children are employed, and where dusty work is carried on, shall be limewashed or painted at least once in every twelve months.

9. *And be it enacted*, That an abstract of the factory and workshop laws, to be prepared and furnished by the chief factory inspector, shall be affixed in a conspicuous place at the entrance of every factory and workshop.

10. *And be it enacted*, That if the inspector of factories find that the heating, lighting, ventilation or sanitary arrangement of any shop or factory is such as to be injurious to the health of persons employed therein, or that the means of egress, in case of fire or other disaster, is not sufficient, or that the belting, shafting, gearing, elevators, drums and machinery in shops and factories are located so as to be dangerous to employes and not sufficiently guarded, or that the vats, pans or structures filled with molten metal or hot liquid are not surrounded with proper safeguards for preventing accident or injury to those employed at or near them, he shall notify the proprietor of such factory or workshop to make the alterations or additions necessary within thirty days; and if such alterations or additions are not made within thirty days from the date of such notice, or within such time as said alterations can be made with proper diligence upon the part of said proprietors, said proprietors or agents shall be deemed guilty of violating the provisions of this act; it shall then be the duty of the inspectors to examine the matter in dispute, and if adverse to the appellant he shall carry out the alterations or additions directed by said inspectors within thirty days as aforesaid and under the like penalty.

11. *And be it enacted*, That section fifteen of the act to which this is a supplement be amended to read as follows: 11. *And be it enacted*, That any person or corporation, being the owner, lessee or occupant of any manufacturing establishment, factory, mine, workshop or store, or owning or controlling the use of any building or room, shall, for the violation of any provision of the act or of the act to which this is a supplement, be liable to a penalty of fifty dollars for each offense, to be recovered in an action of debt in any district court in any city or before any justice of the peace having due jurisdiction, and that any employe who shall be guilty of any violation of the provisions of this act shall be liable in a like action to a penalty of not more than fifty dollars, as the court shall fix; that such action shall be prosecuted in the name of the inspector of factories, the trial shall proceed as other actions upon contract, and the first process shall be a summons, returnable in not less than five days or more than ten days after issue, and it shall not be necessary to indorse the same as in *qui tam* actions; the finding of the court shall be that the defendant has or has not, as the case may be, incurred the penalty claimed in the demand of the plaintiff, and judgment shall be given accordingly; in case an execution shall issue and be returned unsatisfied the court, on application, after notice to the defendant, may award an execution to take the body of the defendant, and in case such a defendant is committed under such an execution he shall not be discharged under the insolvent laws of the state, but shall only be discharged by the court making the order for the body execution, or one of the justices of the supreme court, when such court or justice shall be satisfied that further confinement will not accomplish the payment of the judgment and costs.

12. *And be it enacted*, That all acts or parts of acts inconsistent with the provisions of this act be and the same are hereby repealed.

## OHIO.

## TO APPORTION THE STATE OF OHIO INTO INSPECTION DISTRICTS AND FOR OTHER PURPOSES.

SECTION 2. The governor shall appoint one chief inspector, by and with the advice and consent of the Senate, who, with the approval of the governor, shall appoint three district inspectors. The chief inspector and district inspectors shall be competent and practical mechanics. The chief inspector shall hold his office for a term of four years, and shall have his office in the state house, where shall be kept the records of his office, and the district inspectors shall hold their office for the term of three years from the first day of May after their respective appointments, and until their successors are appointed and qualified; the first appointment hereunder shall be made within thirty days after the passage of this act; in case of the resignation, removal or death of the chief inspector, the vacancy shall be filled in the manner above provided for the original appointments for the unexpired term only of the position so made vacant.

SEC. 3. The chief inspector and district inspectors shall give their whole time and attention to the duties of their offices respectively; it shall be their duty to visit all shops and factories in their respective districts as often as possible, to see that all the provisions and requirements of this act are strictly observed and carried out; they shall carefully inspect the sanitary condition of the same, [and it shall be their duty] to examine the system of sewerage in connection with said shops and factories, the situations and conditions of water-closets or urinals in and about such shops and factories, and also the system of heating, lighting and ventilating all rooms in such shops and factories where persons are employed at daily labor; also as to the means of exit from all such places in case of fire or other disaster, and also all belting, shafting, gearing, elevators, drums and machinery of every kind and description in and about such shops and factories, and see that the same are not located so as to be dangerous to employes when engaged in their ordinary duties, and that the same, so far as practicable, are securely guarded, and that every vat, pan or structure filled with molten metal or hot liquid shall be surrounded with proper safeguards for preventing accident or injury to those employed at or near them; and that all such are in a proper sanitary condition, and are adequately provided with means of escape in case of fire or other disaster.

SEC. 2573b. That said inspectors shall have entry in'o all such shops or factories at all reasonable times, and it shall be unlawful for the owner, proprietors, agents or servants in such factories or shops to prevent, at all reasonable hours, their entry into such shops or factories, for the purpose of such inspections.

SEC. 573c. That said inspectors, if they find upon such inspection that the heating, lighting, ventilation or sanitary arrangement of any such shop or factory is such as to be injurious to the health of persons employed or residing therein, or that the means of egress in case of fire or other disaster is not sufficient, or that the belting, shafting, gearing, elevators, drums and machinery in such shops and factories are located so as to be dangerous to employes, and not sufficiently guarded, or that the vats, pans or structures filled with molten metal or hot liquid are not surrounded with proper safeguards for preventing accident or injury to those employed at or near them, shall notify



the owners, proprietors or agents of such shops or factories to make the alterations or additions necessary within thirty (30) days; and if such alterations or additions are not made within thirty (30) days from the date of such notice, or within such time as said alterations can be made with proper diligence upon the part of said proprietors or owners, said proprietors, owner or agent so notified shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not more than two hundred (200) and not less than ten (10) dollars, which fine shall be paid into the treasury of the county in which conviction is had.

SEC. 4. The district inspectors shall make a record of all examinations of shops and factories in their respective districts, showing the date when made, the conditions in which such shops and factories are found, and what changes were ordered, the number of shops and factories in their respective districts, the number of men, women and children employed in each shop or factory, together with all such other facts and information of public interest concerning the condition of such shops and factories as they may think useful and proper, which record shall be filed in the office of the chief inspector every week, to be by him recorded, and so much thereof as may be of public interest to be included in his annual report.

#### RELATING TO THE EMPLOYMENT OF MINORS IN WORKSHOPS AND FACTORIES.

SEC. 6986. That no minor under the age of twelve years shall be employed in any factory, workshop or establishment wherein the manufacture of any goods of any kind is carried on.

SEC. 6986aa. No minor under the age of eighteen years shall be employed in any of the places named for a longer period than ten hours a day, and in no case shall the hours of labor exceed sixty in one week; and every employer shall post in a conspicuous place in every room where such persons are employed a printed notice, stating the number of hours required of them in each day of the week; the form of such printed notice shall be furnished by the chief inspector of workshops and factories, and shall be approved by the attorney-general; and it shall also be the duty of every employer of minors to keep a record, which shall be open to the inspection of the chief inspector of workshops and factories and his assistants, giving the name of each minor employed, his or her name, date and place of birth, and present residence of the parents or guardians.

SEC. 6986bb. Any person or corporation who shall employ any person contrary to the provisions of this act, or who shall violate any of the provisions of this act, shall, upon conviction thereof, be fined in any sum not less than fifty nor more than one hundred dollars, or imprisoned not less than thirty nor more than ninety days.

SEC. 6986c. It shall be the duty of the inspector of shops and factories to prosecute all violations of this act, when the same shall come to his knowledge, in any court of competent jurisdiction.

#### FOR THE PRESERVATION OF THE HEALTH OF FEMALE EMPLOYEES.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio,* That every person or corporation employing female employes in any manufacturing, mechanical or mercantile establishment in this state, shall provide suitable seats for the use of the female employes so

employed, and shall permit the use of such by them when they are not necessarily engaged in the active duties for which they are employed.

SEC. 2. Any person or corporation violating any of the provisions of this act shall be punished by a fine of not less than ten dollars nor more than seventy-five dollars for each offense.

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NEW YORK.

TO REGULATE THE EMPLOYMENT OF WOMEN AND CHILDREN.

SECTION 1. No minor under the age of eighteen years nor any woman under twenty-one years shall be employed at labor in any manufacturing establishment in this State for a longer period than sixty hours in any one week, unless for the purpose of making necessary repairs.

SEC. 2. No child under thirteen years of age shall be employed in any manufacturing establishment within this State. It shall be the duty of every person so employing children to keep a register in which shall be recorded the name, birth place, age, and place of residence of every person so employed by him under the age of sixteen years. And it shall be unlawful for any manufacturing establishment to hire or employ any child under the age of sixteen years without there is first provided and placed on file an affidavit made by the parent or guardian, stating the age, date, and place of birth of said child; if said child have no parent or guardian, then such affidavit shall be made by the child, which affidavit shall be kept on file by the employer, and which said register and affidavit shall be produced for inspection on demand made by the inspector, assistant inspector, or any of the deputies appointed under this act.

SEC. 3. Every person, firm, or corporation employing women under twenty-one years, or minors under eighteen years of age, in any manufacturing establishment, shall post and keep posted in a conspicuous place in every room where such help is employed, a printed notice stating the number of hours per day for each day of the week required of such persons, and in every room where children under sixteen years of age are employed, a list of their names with their age.

SEC. 4. Any person who knowingly violates or omits to comply with any of the foregoing provisions of this act, or who knowingly employs or suffers or permits any child to be employed in violation of its provisions, shall, on conviction, be punished by a fine of not less than fifty nor more than one hundred dollars, and in default of payment of such fine, by imprisonment for not less than thirty nor more than ninety days.

SEC. 5. No person or corporation employing less than five persons or children, excepting in any of the cities of this State, shall be deemed a manufacturing establishment within the meaning of this act.

SEC. 6. The governor shall, immediately after the passage of this act, appoint, with the advice and consent of the senate, a factory inspector at a salary of two thousand dollars per year, and one assistant at a salary of fifteen hundred dollars per year, whose terms of office shall be three years. The said inspector and assistant shall be empowered to visit and inspect, at all reasonable hours, and as often as prac-

licable, the factories, workshops, and other establishments in the State where the manufacture of goods is carried on, and to report to the bureau of labor statistics of this State on or before the thirtieth day of November of each year. It shall also be the duties of said inspector to enforce the provisions of this act, and to prosecute all violations of the same before any magistrate or any court of competent jurisdiction in the State.

SEC. 7. All necessary expenses incurred by said inspectors in the discharge of their duty shall be paid from the funds of the State, upon the presentation of proper vouchers for the same, provided that not more than twenty-five hundred dollars shall be expended by them therefor in any one year.

SEC. 8. It shall be the duty of the owner, agent, or lessee of any manufacturing establishment where hoisting-shafts or well-holes are used, to cause the same to be properly and substantially inclosed or secured, if, in the opinion of the inspector, it is necessary to protect the life or limbs of those employed in such establishments. It shall also be the duty of the owners, agent, or lessee to provide or cause to be provided such proper trap or automatic doors, so fastened in or at all elevator ways as to form a substantial surface when closed, and so constructed as to open and close by action of the elevator in its passage, either ascending or descending.

SEC. 9. Proper and substantial hand-rails shall be provided on all stairways in manufacturing establishments, and where, in the opinion of the inspector, it is necessary, the steps of said stairs in all such establishments shall be substantially covered with rubber, securely fastened thereon, for the better safety of persons employed in said establishments. The stairs shall be properly screened at the sides and bottom, and all doors leading in or to such factory shall be so constructed as to open outwardly where practicable, and shall be neither locked, bolted, nor fastened during working hours.

SEC. 10. Fire-escapes shall be provided on the outside of all factories three or more stories in height, connecting with each floor above the first, well fastened and secured, and of sufficient strength. Stationary stairs or ladders shall be provided on the inside, from the upper story to the roof, as a means of escape in case of fire.

SEC. 11. It shall also be the duty of the owner of such factory, or his agent, superintendent, or other person in charge of the same, to furnish and supply, or cause to be furnished and supplied, in the discretion of the inspector, where machinery is in use, automatic shifters or other mechanical contrivances, for the purpose of throwing on or off belts or pulleys; and no female under the age of twenty-one years, and no male under eighteen years of age, shall be allowed to clean machinery while in motion. All gearing and belting shall be provided with proper safeguard.

SEC. 12. It shall be the duty of the agent, superintendent or other person having charge of a factory or workshop, or of any floor or part thereof, to report in writing to the factory inspector all accidents or injury done to any person employed in such factory, within forty-eight hours of the time of the accident, stating as fully as possible the extent and cause of such injury, and the place where the injured person has been sent.

SEC. 13. A suitable and proper wash-room and water-closets shall be provided for females where employed, and the water-closets used by females shall be separate and apart from those used by males, and shall be properly screened and ventilated, and at all times kept in a clean condition.

SEC. 14. Not less than forty-five minutes shall be allowed for the noon-day meal in any manufacturing establishment in this state. The factory inspector, his assistant or any of his deputies shall have power to issue written permits in special cases, allowing a shorter meal time at noon, and such permit must be conspicuously posted in the main entrance of the establishment, and such permit may be revoked at any time the inspector deems necessary, and shall only be given where good cause can be shown.

SEC. 15. The factory inspector, now or hereafter appointed under and by virtue of the provisions of chapter four hundred and nine of the laws of eighteen hundred and eighty-six, is hereby authorized to appoint such number of persons as in his judgment may be necessary, not exceeding eight, who shall be known as deputy factory inspectors, either or any one of whom may be appointed to act as clerk in the main office, and whose duties it shall be to enforce the provisions of this act and of chapter four hundred and nine of the laws of eighteen hundred and eighty-six. The powers of said deputies shall be the same as the powers of the factory inspectors, subject to the supervision and direction of the factory inspector.

SEC. 16. The district attorney of any county of this state is hereby authorized, upon the request of the factory inspector, or either of his deputies, or of any other person of full age, to commence and prosecute to termination before any recorder, police justice, or court of record, in the name of the people of the state, actions or proceedings against any person or persons reported to him to have violated the provisions of this act.

SEC. 17. The traveling expenses of each of said deputies shall be approved by the inspector and audited by the comptroller of the state, before payment, and said deputy inspectors shall have an annual salary of ten hundred dollars, to be paid monthly by the treasurer of state out of any moneys not otherwise appropriated.

SEC. 18. Said factory inspector shall have power to divide the state into districts and assign one of said deputies to each district, and may transfer any of the deputies to other districts in case the best interests of the state require it. The inspector shall have the power of removing any of the deputy inspectors at any time.

SEC. 19. The factory inspector shall receive an annual salary of two thousand dollars, and the assistant factory inspector shall receive an annual salary of fifteen hundred dollars, and they shall make a report to the legislature on or before the tenth day of January of each year; and an office shall be furnished by the capitol commissioner, in the new capitol, as soon as practicable, which shall be set apart for the use of the factory inspector. The factory inspector, his assistant and deputies shall have the same power to administer oaths as is now given to notaries public, in cases where persons desire to verify documents connected with the proper enforcement of this act.

SEC. 20. Any person who violates or omits to comply with any of the foregoing provisions of this act shall be deemed guilty of a misdemeanor, and on conviction shall be punished by a fine of not less than twenty nor more than one hundred dollars, or by imprisonment for not less than thirty nor more than ninety days, or by both such fine and imprisonment.

SEC. 21. A copy of this act shall be posted in each work-room of every manufacturing or mercantile house in this state where persons are employed who are affected by the provisions of this act.

SEC. 22. All acts or parts of acts inconsistent with the provisions of this act are hereby repealed.

## WISCONSIN.

## POWERS AND DUTIES OF THE BUREAU OF LABOR AND INDUSTRIAL STATISTICS.

SECTION 4. The duties of the said commissioner of the bureau of labor and industrial statistics shall be to collect, collate and publish statistics and facts relative to the manufactures, industrial classes and material resources of the state; and especially to examine into the relations between labor and capital, the means of escape from fire, and protection of life and health in factories and workshops, the employment of illegal child labor, the exaction of unlawful hours of labor from women and children, the educational, sanitary, moral and financial condition of laborers and artisans, the cost of food, fuel, clothing and building material, the causes of strikes and lockouts, as well as kindred subjects and matters pertaining to the welfare of industrial interests and classes.

SEC. 5. The commiseioner, his deputy, or the factory inspector shall have power to enter any factory or workshop in which labor is employed, for the purpose of gathering facts and statistics, or of examining the means of escape from fire, and the provisions made for the health and safety of operatives in such factory or workshop; and in case the officer of the bureau shall discover any violations of or neglect to comply with the laws in respect to child labor, hours of labor for women or children, fire-escapes, and similar enactments now or hereafter to be made, he shall notify the owner or occupant of such factory or workshop, in writing, of the offense or neglect, and if such offense or neglect is not corrected or remedied within thirty days after the service of the notice aforesaid, he shall lodge formal complaint with the district attorney of the county in which the offense is committed or the neglect occur, whereupon that officer shall proceed at once against the offender according to law.

SEC. 6. The factory inspector or any officer of the bureau may examine hotels and lodging or boarding-houses for the purpose of discovering whether they are properly equipped with lawful fire escapes; and he may post in any hotel, lodging or boarding-house so examined the laws upon this matter, together with his official statement as to whether the said laws are fully complied with by said hotel, lodging or boarding-house; and any hotel, lodging or boarding-house keeper, or other person, who shall mutilate, destroy or remove from any building or buildings the said laws or statement so posted shall be fined fifty dollars for each and every offense upon complaint of any officer of the bureau or any citizen. Whenever any hotel, lodging or boarding-house that has been posted as not complying with the terms of the laws in respect to fire-escapes shall be properly provided and equipped with lawful fire-escapes, and the bureau shall be notified thereof, the commissioner shall at once order a new statement, setting forth that fact to be posted in said hotel, lodging or boarding-house. And the bureau shall keep a record of all buildings so examined and posted.

SEC. 7. The factory inspector, or any officer of the bureau, may post in any factory or workshop examined by him the laws now or hereafter to be made in respect of child labor, hours of labor, fire-escapes, or other matters pertaining to the health and safety of artisans; and if the owner, manager or proprietor of such factory or workshop, or his agent, or any person whomsoever, shall remove, destroy or mutilate the laws so posted, he shall, on complaint of any officer of the bureau, or any citizen, be fined fifty dollars for each and every offense.

SEC. 8. The said commissioner shall have power to prescribe blank forms, and transmit them to employers, which shall be filled out clearly and completely, under oath, by the person or persons to whom they are sent, with the facts, statistics and statements asked for, and returned to him within such reasonable time as he may fix. In case any owner or occupant, or his agent, shall refuse to admit any officer of the said bureau to his workshop or factory, he shall forfeit the sum of ten dollars for each and every offense, and if he shall, through his agent or otherwise, neglect, fail, or refuse to fill out the said blank forms, and verify and return them as required, he shall forfeit the sum of ten dollars for each and every day the said blanks may be so delayed beyond the time fixed by the commissioner for their return. The forfeits named and provided in this act shall be sued for in the name of the state, by the district attorney of the proper county, upon complaint of any officer of said bureau, or any citizen, and shall be paid into the school fund.

PASSENGER AND OTHER ELEVATORS.

SECTION 1. The state factory inspector, his assistant, or any officer of the bureau of labor and industrial statistics, may examine elevators used for carrying freight or passengers, or both, and shall condemn those found to be defective or unsafe, by written notice given to the proprietor or owner, or the agent of either, or by posting said notice on the elevator walls or cab. And if any elevator so condemned shall be continued in use without repairs, and loss of limb or life result therefrom, the owner or proprietor so keeping it in use shall be held fully responsible, civilly and criminally, for said loss of life or limb.

S c. 2. The said factory inspector or any officer named in section one of this act shall have power to order bull-wheels, fly-wheels, tumbling-rods, elevator wells, stairways, shafting, or dangerous machinery of any kind, to be guarded and protected, so as not to hazard the safety of workmen or visitors. Any person refusing to obey his orders in this respect shall be fined fifty dollars for each and every offense.

SEC. 3. Whenever the state factory inspector, or his assistant, or any officer of the bureau of labor and industrial statistics, shall file complaint with any district attorney that any hotel, factory, or public building, or any structure whatsoever in his county, is being used without the fire-escapes, watchmen, or other means of safety prescribed by law, the said district attorney shall at once proceed against the offender according to law; and shall, without further aid or presence of the state factory inspector, or the other officers named in this section, secure the necessary witnesses and evidence for the complete information of the jury. And in case he shall refuse so to do, the state factory inspector, or any officer named in this act, may file charges against him with the governor and ask his removal for willful neglect of duty and malfeasance of office.

FIRE ESCAPES—FACTORIES.

SECTION 1. Section 4575a of the Revised Statutes is amended so as to read as follows:

Section 4575a. Any person, persons, or body corporate owning, occupying, or controlling any factory, workshop, or structure three or more stories high, in which several persons are employed at any kind of labor, on or above the third floor or story, shall provide and keep connected with the same one or more good and substantial metallic or

fire-proof ladders, stairs or stairways, ready for use at all times, reaching from the cornice to the ground, on the outside of such building, and placed in such position as to be easy of access to the occupants of such building in case of fire, and sufficient to furnish reasonable means of escape to the persons employed therein from each and every floor or story. And any such person, persons, or corporate body who shall, for three months after the passage and publication of this act, fail to provide and keep such means of escape from fire, shall be subject to a fine not exceeding one hundred dollars, or to imprisonment in the county jail not exceeding three months, at the discretion of the court.

#### OUTWARD SWINGING DOORS.

SECTION 1. All churches, public and private school-houses, hotels, factories, or other manufacturing establishments, constructed at any time after the passage of this act, shall be so constructed that the doors shall swing outward, or both in and out, as the builders thereof may elect.

#### DUTIES OF ARCHITECTS AND OTHERS.

SECTION 1. Any architect who shall draw plans for or superintend the erection of any school-house, church, hall, factory, or hotel, without providing in said plans the fire-escapes and outward-swinging doors now required by law, shall be guilty of a misdemeanor, and on conviction thereof shall be fined twenty-five dollars for the first offense, and one hundred dollars for each subsequent offense.

SEC. 2. Any person or persons, body corporate, official or officials, who shall erect or cause to be erected any building named in this act without providing the fire-escapes and outward-swinging doors, or who shall neglect to provide the same as required by law, shall be guilty of a misdemeanor, and upon conviction thereof shall be fined one hundred dollars.

#### BLACKLISTING EMPLOYES.

SECTION 1. Any two or more employers who shall agree, combine, and confederate together for the purpose of interfering with or preventing any person or persons seeking employment from obtaining such employment, either by threats, promises, or by circulating or causing the circulation of a so-called black-list, or by any means whatsoever, or for the purpose of procuring and causing the discharge of any employe or employes by any means whatsoever, shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by imprisonment in the county jail for a period of not more than one month, or by a fine of not less than fifty dollars, or by both.

#### HOURS OF LABOR.

SECTION 1729, Revised Statutes. In all engagements to labor in any manufacturing or mechanical business, where there is no express contract to the contrary, a day's work shall consist of eight hours, and all engagements or contracts for labor in such cases shall be so construed; but this shall not apply to any contract to labor by the week, month, or year.

SEC. 1728. In all manufactories, workshops, and other places used for mechanical or manufacturing purposes, the time of labor of children under the age of eighteen years and of women employed therein, shall

not exceed eight hours in one day; and any employer, stockholder, director, officer, overseer, clerk, or foreman who shall compel any woman or any such child to labor exceeding eight hours in any one day, or who shall permit any child under fourteen years of age to labor more than ten hours in any one day in any such place, if he shall have control over such child sufficient to prevent it, or who shall employ at manual labor any child under twelve years of age in any factory or workshop where more than three persons are employed, or who shall employ any child of twelve and under fourteen years of age in any such factory or workshop for more than seven months in any one year, shall be punished by a fine not less than five nor more than fifty dollars for each such offense.

#### INTERFERING WITH LABORERS OR MACHINERY.

SECTION 1. Any person who, by threats, intimidation, force, or coercion of any kind, shall hinder or prevent any other person from engaging in or continuing in any lawful work or employment, either for himself or as a wage-worker, or who shall attempt to so hinder or prevent, shall be punished by a fine not exceeding one hundred dollars, or by imprisonment in the county jail not more than six months, or by both fine and imprisonment, in the discretion of the court.

SEC. 2. If any person who shall, individually or in association with one or more others, willfully break, injure, or remove any part or parts of any railway car or locomotive, or any other portable vehicle or traction engine, or any part or parts of any stationary engine, machine, implement, or machinery, for the purpose of destroying such locomotive, engine, car, vehicle, implement, or machinery, or of preventing the useful operation thereof, or who shall in any other way willfully or maliciously interfere with or prevent the running or operation of any locomotive, engine, or machinery, shall be punished by fine not exceeding one thousand dollars, or by imprisonment in the county jail or the state prison not exceeding two years, or by both fine and imprisonment, in the discretion of the court.

#### CONSPIRACY OR "BOYCOTTING."

SECTION 1. Any two or more persons who shall combine, associate, agree, mutually undertake or concert together for the purpose of willfully or maliciously injuring another in his reputation, trade, business, or profession, by any means whatever, or for the purpose of maliciously compelling another to do or perform an act against his will, or preventing or hindering another from doing or performing any lawful act, shall be punished by imprisonment in the county jail not more than one year, or by fine not exceeding five hundred dollars.

### CONNECTICUT.

#### CHILD LABOR.

SECTION 1. No child under thirteen years of age shall be employed in any mechanical, mercantile, or manufacturing establishment.

SEC. 2. Any person acting for himself, or as agent in any way whatever, of any mechanical, mercantile, or manufacturing establishment, who shall employ, or authorize or permit to be employed in such estab-



lishment any child in violation of the preceding section, shall be fined not more than sixty dollars, and every week of such illegal employment shall be a distinct offense; provided, that no person shall be punished under this act for the employment of any child when, at the time of such employment, the employer shall demand and thereafter during such employment keep on file the certificate of any town clerk, or of the teacher of the school where such child last attended, stating that such child is more than thirteen years of age, or a like certificate of the parent or guardian of such child in such cases only where there is no record of the child's age in the office of the town clerk, and such child has not attended school in this state. Any parent or guardian who shall sign any certificate that his child or ward is more than thirteen years of age, when in fact such child or ward is under thirteen years of age, shall be fined not more than sixty dollars.

SEC. 3. It shall be the duty of the state board of education and the school visitors, boards of education, and town committees of towns to enforce this act; and for that purpose the state board of education may appoint agents, under its supervision and control, for terms of not more than one year, who shall be paid not to exceed five dollars per day for time actually employed and necessary expenses, and whose accounts shall be approved by said board and audited by the comptroller.

#### CONCERNING THE INSPECTION OF FACTORIES.

SECTION 1. *Be it enacted by the Senate and House of Representatives in General Assembly convened,* The governor shall appoint an inspector of factories who shall hold his office from the first day of July, 1887, till the first day of July, 1889, and until his successor is appointed and qualified. The governor shall, with the consent of the senate, within sixty days after the organization of the general assembly in January, 1889, and every two years thereafter, appoint an inspector of factories, who shall hold his office from the first day of the succeeding July for a term of two years, and until his successor is appointed and qualified. In case of vacancy in the office of inspector through death, resignation, inability or removal, the governor shall fill the same until filled in the manner above provided for the appointment of inspector; and the governor may remove the inspector for cause.

SEC. 2. The inspector of factories shall, as often as practicable, carefully examine all buildings and places where machinery shall be used, and shall have authority to enter such buildings and places at all proper times for the purpose of such inspection, and shall receive for his services the sum of fifteen hundred dollars per annum, payable monthly, and necessary expenses. He shall, on or before the first day of December in each year, make a report to the governor of the condition, as respects safety to life and health, of the factories, buildings, and places visited by him, and such report shall be printed for the use of the general assembly at each of its regular sessions.

SEC. 3. All factories and buildings where machinery shall be used shall be well ventilated, and kept as clean as the nature of the business will permit. The belting, shafting, gearing, machinery, and drums of all factories and buildings where machinery shall be used, when so placed as, in the opinion of the inspector, to be dangerous to persons employed therein while engaged in their ordinary duties, shall, as far as practicable, be securely guarded. No machinery other than steam engines in a factory shall be cleaned while running, after notice forbidding the same is given by the inspector to the owners or operators of the factory.

SEC. 4. The inspector may order the opening of all hoistways, hatchways, elevator-wells, and wheel-holes upon every floor of any factory or other building where machinery shall be used to be protected by good trap-doors, self-closing hatches, and safety-catches or other safeguards such as will insure the safety of the employes in such factory or other building where machinery shall be used, and all due diligence shall be used to keep such trap-doors closed at all times, except when in actual use by an occupant of the building having the use and control of the same.

SEC. 5. Every person or corporation managing or operating any factory, or owning or controlling the use of any other building where more than five persons shall be employed at labor, shall provide suitable water-closet accommodations for the use of the persons employed, and shall keep the same in good sanitary condition.

SEC. 6. It shall be the duty of the inspector to enforce the provisions of this act by giving proper orders or notices to the persons or corporations owning, operating, or managing the factories or buildings inspected by him, and also to make complaint to the state's attorneys in the several counties, respectively, of all violations of this act.

SEC. 7. Any person, firm, or corporation, being the owner, lessee, or occupant of any factory or building included within the provisions of this act, or owning or controlling the use of any room in such building, shall, for a violation of any provision of sections three, four, or five hereof, forfeit to the use of the state not less than fifty nor more than five hundred dollars, and shall also be liable to any employe for all damages suffered by him by reason of such violation. It shall be the duty of the state's attorneys in the several counties to collect forfeitures under this act, but no suit shall be brought for any such violation, either in behalf of any person or the state, until four weeks after notice has been given by the inspector to such person, firm, or corporation of any changes necessary to be made to comply with the provisions of said sections, and not then if, in the meantime, such changes have been made in accordance with such notification. Nothing herein shall be construed as limiting, in any way, the right of a person injured to bring an action to recover damages for the same, as though this act had not been passed.

SEC. 8. The orders and notices given by the inspector under this act shall be written or printed, and signed by him officially, and may be served by himself or any proper officer or indifferent person, by leaving an attested copy thereof with or at the usual place of abode of the person upon whom service is to be made; and the notice, properly indorsed with the doings of the person or officer serving the same, shall be returned to the office of the town clerk of the town in which is located the factory, building, or business to which such notice appertains, where it shall be kept on file. Such notice, and copies thereof duly certified by the town clerk, shall be *prima facie* evidence that notice was given as therein appears. Notice to one member of a firm shall be notice to every member thereof, and notice to the president, secretary or treasurer of a corporation shall be notice to such corporation. The fees for serving such orders and notices, unless served by the inspector, shall be the same as for the service of process in civil actions, and shall be included in the necessary expenses of the inspector, and paid by the state.

SEC. 9. It shall be the duty of the comptroller to provide suitable rooms in the capitol at Hartford for the use of the inspector, and to furnish him blank forms for the purpose of giving him notices and orders

required by this act and for annual reports to be made to the governor. The inspector shall keep, in books provided by the comptroller for that purpose, copies of all notices and orders given by him, and a record of all inspections and examinations made, and upon the expiration of his term of office shall file his books of record with the secretary of this state.

SEC. 10. The inspector may, from time to time, employ special agents to assist him in his inspections and examinations, who shall receive compensation for the time actually employed in such service only. The total amount expended under section ten of this act shall not exceed in any one year the sum of fifteen hundred dollars which shall be paid by the state upon proper vouchers by the special agents, which shall be signed by the inspector.

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MAINE.

TO REGULATE THE HOURS OF LABOR AND THE EMPLOYMENT OF WOMEN  
AND CHILDREN.

SECTION 1. No female minor under eighteen years of age, no male minor under sixteen years of age, and no woman shall be employed in laboring in any manufacturing or mechanical establishment in this state more than ten hours in any one day, except when it is necessary to make repairs to prevent the interruption of the ordinary running of the machinery, or when a different apportionment of the hours of labor is made for the sole purpose of making a shorter day's work for one day of the week; and in no case shall the hours of labor exceed sixty in a week; and no male person sixteen years and over shall be so employed as above more than ten hours a day during minority, unless he voluntarily contracts to do so with the consent of his parents, or one of them, if any, or guardian, and in such case he shall receive extra compensation for his services; provided, however, any female of eighteen years of age or over may lawfully contract for such labor for any number of hours in excess of ten hours per day, not exceeding six hours in any one week or sixty hours in any one year, receiving additional compensation therefor; but during her minority the consent of her parents, or one of them, or guardian, shall first be obtained.

SEC. 2. Every employer shall post in a conspicuous place in every room where such persons are employed a notice, printed in plain, large type, stating the number of hours' work required of them on each day of the week, the exact time for commencing work in the morning, stopping at noon for dinner, commencing after dinner, and stopping at night; the form of such printed notice shall be furnished by the deputy commissioner of labor hereafter named, and shall be approved by the attorney-general; and the employment of any such person for a longer time in any day than that so stated shall be deemed a violation of section one, unless it appears that such employment is to make up for time lost on some previous day of the same week, in consequence of the stopping of machinery upon which such person was employed or dependent for employment.

SEC. 3. Whoever, either for himself, or as superintendent, overseer, or agent of another, employs or has in his employment any person in violation of the provisions of section one, and every parent or guardian who permits any minor to be so employed, shall be punished by

a fine of not less than twenty-five dollars nor more than fifty dollars for each offense. A certificate of the age of a minor made by him and by his parent or guardian at the time of his employment shall be conclusive evidence of his age in behalf of the hirer, upon any prosecution for a violation of the provisions of section one. Whoever falsely makes and utters such a certificate with an intention to evade the provisions of this act shall be subject to a fine of one hundred dollars.

SEC. 4. It shall be lawful for any person, firm, or corporation engaged in any manufacturing or mechanical business, to contract with adult or minor employees to give one week's notice of intention on such employee's part to quit such employment, under a penalty of forfeiture of one week's wages. In such case the employer shall be required to give a like notice of intention to discharge the employee; and on failure shall pay to such employee a sum equal to one week's wages. No such forfeiture shall be enforced when the leaving or discharge of the employee is for a reasonable cause; provided, however, the enforcement of the penalty aforesaid shall not prevent either party from recovering damages for a breach of the contract of hire.

SEC. 5. No child under twelve years of age shall be employed in any manufacturing or mechanical establishment in this state. Whoever, either for himself, or as superintendent, overseer, or agent of another, employs or has in his employment any child in violation of the provisions of this section, and every parent or guardian who permits any child to be so employed, shall be punished by a fine of not less than twenty-five nor more than fifty dollars for each offense.

SEC. 6. No child under fifteen years of age shall be employed in any manufacturing or mechanical establishment in this state except during vacations of the public schools in the city or town in which he resides, unless during the year next preceding the time of such employment he has for at least sixteen weeks attended some public or private school, eight weeks of which shall be continuous; nor shall such employment continue unless such child in each and every year attends some public or private school for at least sixteen weeks, and no child shall be so employed who does not present a certificate made under or by the direction of the school committee, superintendent of the public schools, or the teacher of a private school, that such child has so attended school; and it shall be the duty of such committee, superintendent, or teacher to furnish such a certificate in accordance with the fact, upon request and without charge; provided, that this section shall not take effect until January one, eighteen hundred and eighty-eight.

SEC. 7. Any parent or guardian who procures a child to be employed contrary to section six, and any corporation, owner, superintendent, or agent of the owner of such establishment violating the provisions of said section, shall forfeit the sum of one hundred dollars, one-half to the use of the county and one-half to the use of the city or town where the offense is committed. Money so recovered to the use of the city or town shall be added to its school money. It shall be the duties of the school committees and superintendent of public schools to inquire into violations of said section, and report the same to the county attorney, who shall prosecute therefor.

SEC. 8. Every owner, superintendent, or overseer of any such manufacturing or mechanical establishment shall require and keep on file a certificate of the age and place of birth of every child under sixteen years of age employed therein, so long as such child is so employed, which certificate shall also state in the case of a child under fifteen

years of age the amount of his school attendance during the year next preceding such employment. Said certificate shall be signed by a member of the school committee of the place where such attendance has been had, or by some one authorized by such committee; and the form of said certificate shall be furnished by the state superintendent of schools, and shall be approved by the attorney-general. The deputy commissioner of labor hereinafter named, or either of his assistants, may demand the names of the children under sixteen years employed in such establishment, in the several cities and towns of the state, and may require that the certificates of age and school attendance prescribed in this section shall be produced for his inspection, and a failure to produce the same shall be *prima facie* evidence that the employment of such child is illegal.

SEC. 9. The governor, by and with the advice and consent of the council, shall appoint a deputy commissioner of labor, at a salary of one thousand dollars a year, who shall hold office for two years, or until his successor is appointed, unless sooner removed. It shall be the duty of the deputy commissioner of labor to inquire into any violations of this act, and also to assist in the collection of statistics and other information which may be required for the use of the bureau of industrial and labor statistics; and said deputy commissioner shall, in addition to his salary provided by law, be allowed his reasonable expenses. Whenever the governor of this state shall be satisfied the deputy commissioner of labor cannot perform all the duties of his said office required by this section, in person, he shall, with the advice and consent of the council, appoint a sufficient number of assistant deputies to assist him in so doing. Said assistants shall hold their office for the term of two years, and act under the direction of said deputy commissioner of labor, and shall receive the sum of two dollars per day and reasonable expenses while actually engaged in duty. Said assistants may, at any time, be removed for cause by the governor. All bills for the expenses of the deputy commissioner of labor, and for the services and expenses of such assistant deputies, shall be audited by the council. For the purpose of inquiring into any violation of the provisions of this act, and enforcing the penalties thereof, such deputy commissioner and assistants may, at all reasonable times, enter any manufacturing or mechanical establishment and make investigation concerning such violations. Such investigation shall be conducted with as little interruption as possible to the prosecution of the business of such establishment. Whoever interferes with said deputy commissioner or his assistants in the performance of their duties as prescribed in this act shall be fined fifty dollars.

SEC. 10. Nothing in this act shall apply to any manufacturing establishment or business the materials and product of which are perishable, and require immediate labor thereon to prevent decay thereof or damage thereto.

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ERRATUM.—On page 2, in the list of factory inspectors, the residence of James Connolly, Chief Inspector of New York, is given as being in New York City; it should be Albany, office in State Capitol.

SECOND ANNUAL CONVENTION  
OF  
NATIONAL ASSOCIATION  
OF  
Factory Inspectors  
OF  
NORTH AMERICA,  
HELD AT  
Boston, Mass., June 8-10, 1888.

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COLUMBUS, OHIO:  
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1889.

## FACTORY INSPECTORS.

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RUFUS R. WADE, *Chief* . . . . . Boston, Mass.  
L. T. FELL, *Chief* . . . . . Orange, N. J.  
HENRY DORN, *Chief* . . . . . Columbus, Ohio.  
JAMES CONNOLLY, *Chief* . . . . . Albany, N. Y.  
JOHN FRANEY, *Assistant Chief* . . . . . Buffalo, N. Y.  
HENRY CLAYMIER . . . . . Milwaukee, Wis.  
JAMES C. MOORE . . . . . Janesville, Wis.  
W. P. KELLEY . . . . . Hartford, Conn.  
L. R. CAMPBELL, *Deputy Com'r of Labor* . . . Rockland, Me.  
JOSIAH B. BOWDITCH, *Com'r of Labor Statistics* . Providence, R. I.  
JOHN H. DAVIS, *Chief Clerk* . . . . . Providence, R. I.



## OFFICERS.

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RUFUS R. WADE . . . . . President.  
L. T. FELL . . . . . First Vice-President.  
JOHN FRANEY . . . . . Second Vice-President.  
HENRY DORN . . . . . Secretary-Treasurer.  
L. R. CAMPBELL . . . . . Assistant Secretary. •



## **ORDER OF BUSINESS.**

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**Roll-call of Officers.**

**Reading of Minutes.**

**Reports of Committees.**

**Unfinished Business.**

**New Business.**

**Election of Officers.**

## PREFATORY.

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The importance of bringing together the Factory Inspectors of the different States has long been recognized. The benefits that would likely accrue from a conference of those whose duties involve such vast consequences to community were manifest. The laws on the subject of inspection in the various States are so different as scarcely to be recognizable as bearing upon the same general subject. To produce something like uniformity, both in the laws and in the practice of the inspectors, was deemed desirable, and this could only be effected by an interchange of views and a comparison of the statutes under which each inspector acted. To accomplish so laudable a purpose, Mr. Henry Dorn, Chief Inspector of Workshops and Factories of Ohio, opened a correspondence during the year 1886, with the Inspectors of other States, with the view of bringing about a meeting at as early a date as practicable. This, of course, consumed considerable time. Each Inspector entertained views peculiar to himself on the subject, and these conflicting ideas had to be harmonized.

But Mr. Dorn persevered in his efforts, and finally succeeded. The first National Convention of State Factory Inspectors was held in the city of Philadelphia on the 8th and 9th of June, 1887, where the use of the Common Council chamber was tendered for its meetings. The wisdom and foresight that suggested the movement were manifest to the members.

At the first Convention five States (Massachusetts being the first), New Jersey, Ohio, New York and Wisconsin, had established Factory-Inspection departments. Connecticut was represented by the State Board of Education.

### *Prefatory.*

At the close of their deliberations, a permanent organization was effected and arrangements made for annual meetings thereafter. These annual meetings will, no doubt, grow in importance and interest each year, and it is confidently believed will result in incalculable benefit to all concerned, to the employer as well as the employe, and to the public at large. The Convention then adjourned to meet in Boston, as the guests of Massachusetts Inspectors, in August, 1888.

In accordance with the above arrangement, the second annual Convention met in the city of Boston on the 8th, 9th and 10th of August, 1888, and was there tendered the use of the Common Council chamber in which to hold its meetings.

Since the adjournment of the first Convention, two additional Inspection departments had been created, one in the State of Connecticut and one in Maine. The State of Rhode Island was represented by the Commissioner of Labor Statistics and his chief clerk, whose duties are to report the condition of workshops and factories to the Legislature, but they are not clothed with the power to enforce compliance with such changes as may be ordered by them, as inspectors of other States. The whole number of Factory-Inspection departments were then eight, of which seven were represented in the Convention.

After three days' deliberations, during which time a number of instructive speeches, in regard to factory and industrial laws, were delivered by some of the delegates, as well as by Hon. Carroll D. Wright, Commissioner of National Bureau of Labor Statistics, an invitation was accepted, and the mills of Lowell were visited by the delegates.

The proceedings of this Convention are herewith presented, together with important papers read during the session.

HENRY DORN,  
*Secretary-Treasurer.*

## PROCEEDINGS.

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BOSTON, WEDNESDAY, *August 8, 1888.*

The second annual Convention of the National Association of Factory Inspectors of North America convened in the Common Council chamber at 10:45 A. M., with President Rufus R. Wade, Chief Inspector of Massachusetts, in the chair, and Henry Dorn, Chief Inspector of Ohio, at the Secretary's desk.

The roll was called, and the following delegates answered to their names:

Massachusetts—Rufus R. Wade, chief; John T. White, Jos. M. Dyson, S. C. Hunt, J. H. L. Coon, E. Y. Brown, J. A. Moore, H. A. Dexter, W. S. Buxton, J. H. Chadwick, A. J. Cheney, F. A. Osgood, Lemuel Pope, Isaac S. Mullen.

New Jersey—L. T. Fell, chief; G. P. Hall, John D'Arcy, P. Callan, E. R. White.

Ohio—Henry Dorn, chief; Wm. Z. McDonald, John H. Ellis.

New York—John Franey, assistant chief; George Schaubert, Hiram Blanchard, Francis U. Coe.

Connecticut—W. P. Kelley.

Maine—L. R. Campbell.

Rhode Island—Josiah Bowditch, John H. Davis.

Following were the absentees:

New York—James Connolly, chief; John Jordan, George A. McKay, James P. Hooley, George L. Guetig, Johnson Beers.

Ohio—James A. Armstrong.

Wisconsin—Henry Claymier, James C. Moore.

President Wade, in a few well chosen words, introduced to the Convention his honor, Mayor O'Brien, of Boston, who welcomed the delegates to the city in a manner worthy of praise.

President Wade then delivered the following address :

GENTLEMEN OF THE CONVENTION: A little more than a year ago the State Factory Inspectors held their first annual Convention in the hospitable city of Philadelphia. At that time you did me the honor, which I greatly appreciated, of choosing me as the President of the Convention. And I am happy to greet you again to-day as we assemble in our second annual gathering to exchange experiences of our common work, to note the progress which has been made in our respective fields of labor, and to derive such encouragement as we may from the interchanging of ideas.

In a certain broad sense, our chief duty as factory inspectors is to enforce the laws whose execution is expressly entrusted to us. We are not responsible for the wisdom of those laws, nor the particular methods which the law-making power designate for their enforcement. We are expected, to be sure, to exercise common sense in our intercourse with those with whom we have to deal in our work of inspection. It is not wise to exert authority in an arbitrary, unreasonable and offensive manner. We are not to assume that every slight and technical violation of the laws relating to factory inspection must be dealt with as if the offender was a willful wrong-doer. A little discretion and patience do not injure the real interests committed to our care, but often result beneficially in securing the confidence and respect of those who, from inattention or ignorance, have brought themselves within the reach of the law.

But while it is true that to us, as State Factory Inspectors, is committed the duty of strictly enforcing certain laws, and equally true that we are not to be held responsible for those laws, either in scope or in their effect upon the general welfare, we do not conceal the fact that legislators depend upon us for such facts and suggestions as our peculiar experience furnish to aid them in procuring proper statutes.

Under our republican institutions effective laws are based upon an intelligent public sentiment. Laws grow out of public necessity; they are sustained by public opinion, or they fall into disuse and contempt.

Our experience in Massachusetts, I presume, is not singular. The most important labor reforms have been the subjects of earnest and protracted discussion in the newspapers, in public assemblies, in workshops and factories, and wherever bright and capable thinkers have been able to make their ideas and desires known to those who formulate opinions and statutes. Thus, year after year, the ten-hour law, so called, was considered and debated. Petitions, numerous signed,

began to be presented to the Legislature, praying that the hours of labor of factory operatives might be materially shortened.

The subject got into politics, as every live subject generally does, and caucuses and conventions took up the matter in earnest. And this was the history of the agitation for a number of years, until the time came when the great change could be no longer postponed. Once committed to the policy of ameliorating the condition of the wage-earners, the Commonwealth within whose borders we are now assembled has never taken a backward step. She has done nothing rashly, nor has she been quick to enter upon experiments in legislation in behalf of her operative classes.

In the first address which I had the honor of making to this Convention, I took the liberty of giving an outline of the legislation of our Commonwealth in relation to our industrial population. The Legislature of the present year gave careful consideration to the various matters deemed essential to the perfecting of our labor laws.

It will not be expected that I should consume your time in presenting details, although they might possess more than local interest. Let me, therefore, present as briefly as possible, a sketch of some of the changes made in our laws during the current year: First, a law was passed to regulate the erection and construction of public buildings, public or private institutions, school-houses, churches, theatres, public halls, places of public resort, structures of more than two stories in height, whose upper stories are designed to be used in whole or in part as a factory, workshop, mercantile or other establishment, and having accommodations above such second story for ten or more employes, buildings more than two stories in height, designed to be used above the second story in whole or in part as a hotel, family hotel, apartment-house, boarding-house, lodging-house, or tenement house, and having ten or more rooms above said story.

No such building or structure shall hereafter be erected until a copy of the plans be filed with the District Inspector of Factories and Public Buildings, whose certificate endorsed shall be required to show that sufficient ways of egress, and other means of escape from fire, properly located and constructed, have been provided. The inspector may require that proper fire stops shall be provided in the floors, walls and portions of such buildings, and may make such further requirements as may be necessary or proper to prevent the spread of fire therein, or its communication from any steam boiler or heating apparatus.

The courts, at the instance of the inspector, may issue a temporary injunction or restraining order, enjoining the erection of such build-

ing. An important revision and amendment of the law in relation to the employment of children has also been made by our Legislature during the current year. The most stringent provisions have been made to secure the mental training of minors employed in in door work, to extend the limit of age within which no such child shall be employed in any factory, workshop or mercantile establishment in this Commonwealth, and to guard against such evasions that have been practiced in respect to the age and school attendance of minors so employed.

The attention of our Legislature was early called to the subject of way of egress and means of escape from fire in certain buildings of public resort, and experience having shown the necessity of further protection, additional legislation has been enacted. These provisions apply to churches, schools, theatres, public buildings, hotels, family hotels, apartments and boarding-houses, lodging and tenement houses, in which ten or more persons lodge or reside above the second story. There must be more than one way of egress by stairways on the inside or outside of buildings, placed as near as practicable in the opposite ends of every room above the second story in every such building. Women or children shall not be employed in a factory, workshop, mercantile or other establishment, in a room above the second story, from which there is only one way of egress, if the inspector shall so direct in writing.

One of the most valuable features of the new law is that which provides that proceniums or curtain openings of all theatres shall have a fire-resisting curtain of some incombustible material, and such curtain shall be properly constructed, and shall be operated by proper mechanism.

I have not time to enumerate the various sections of this law nor to discuss them in detail. An addition was made by our last Legislature of ten members of the Inspection department of the district police force, qualified to perform the duties of the members of such department. The constant enlargement of the work of our force in this State amply justifies this increase of our numbers.

It is a noticeable fact that the legislation in favor of industrial workers in our State has been the logical outgrowth of scientific knowledge applied to practical experience. It has been clearly demonstrated that allowing all other conditions to be substantially the same, there was a limit of time to human endurance in labor, which, if exceeded, would be not only disastrous to the operative but unprofitable to the mill owner. Twelve to fourteen hours of work daily, for six successive

days, had seemed to be not unreasonable until the subject began to be examined in its economic as well as its moral bearings. Had not men, and even women and children, wrought thus continuously for a generation or more?

But when it was shown that a reduction of the hours of labor meant better results, both as to the amount of production and quality of it, the question of shorter hours was in a fair way to settlement. Thus came about the laws restricting the hours of labor in manufacturing establishments.

Successive steps followed in the same general direction until attention began to be called to the sanitary conditions of the factories and workshops. And now we have statutes, whose enforcement is entrusted to our Massachusetts District Police, which relate to proper sanitary provisions in factories and workshops, and also proper ventilation in public buildings and school-houses. These acts are broad enough to cover the subject of drains, privies, and such sources of air pollution as medical science has shown to be important in reference to health and life.

The laws of our Commonwealth which are intended to protect the rights of her industrial classes are now as complete as those of any other civilized community.

An experience may show the need of their amendment. We are reasonably sure that such changes will be made. As a whole, our people are contented, prosperous, and happy; ambitious to excel in chosen pursuits, so that leadership therein may be possible is not unusual among our laborers. And why should it not be so? The man who toils at the direction of another, may, in the near future, be himself the employer. All avenues to distinction in every walk of life are, like the king's highway, open and free to all travelers. Under our republican institutions the possibilities of advancement are practically without limit. After all, it is this which prevents transient discontent from becoming revolutionary and destructive. We have no legalized privileged classes. The people formed the government and they are the government.

In Massachusetts we have been free from the savage onslaught upon life and property which have afflicted other communities. We have chronic croakers about the encroachments of capital upon labor, but the intelligent, industrious laborer knows that his labor may become more valuable as it becomes more skilled, and thus it rests with himself, to some extent, whether he shall improve his condition and become himself a capitalist. We have a few imported agitators who have fled from



the grinding despotisms of Europe to this free land, who only show their appreciation of the change by howling for the overthrow of our institutions. The gate of immigration, through which these ignorant fanatics came to us, swings both ways, and unless they can behave like good citizens they cannot too soon return to their native shores.

If there are evils in American society and American laws and institutions, we have American methods of correcting them, and dynamite has no mission as a labor reformer among us.

We fail to recognize the wisdom of burning a barn to get rid of a rat.

That man is an enemy to his race who teaches that there is an irrepressible antagonism and hatred between capital and labor. That there are always inequalities to be adjusted, grievances to be remedied, conditions to be modified, all sensible observers know.

The imperfections of human nature, attach to human life in all its phases. There are seasons when labor is ill-paid, but there are seasons of depression when overproduction has glutted the market and prices have fallen, or when the supply of labor has exceeded the demand. No machinery made by the hand of man is so complicated, finely adjusted and yet liable to get out of order as that vast machinery which we call human society. No sensible man corrects the movements of a chronometer by prying it apart with a crowbar or smashing it with a hammer, and the inevitable friction, the erratic movements which disturb the affairs of men creating discontent, and too often suffering and misery, are not proofs that society ought to be revolutionized. Destructive violence is no remedy for evils that the industrial classes suffer. If these evils can be removed by legislation, it may be asked whose fault it is if they are not abolished. No legislative body in our land ventures long to defy the well settled convictions of a majority of its constituents.

Gentlemen, you came to Massachusetts at a propitious time; our soil does not produce the variety and extent of natural products which other States can furnish, yet we can hardly say, as a New Hampshire orator once said, that our only productions are granite and ice. We are largely interested, as you know, in manufactures. Our shops and factories are hives of busy industry. Our business men are thrifty and enterprising. Our educational and charitable institutions have an honorable record. Our churches and school-houses abound in all our centers of population. Our lines of railroads reach in all directions and our capital has caused distant sections of our country to blossom as the rose. Our houses are the habitations of people who are proud

of our country and attached to her institutions, and this love of order and law, of liberty and learning, of charity and religion, are not only the chief glory of our Commonwealth, but the highest inheritance of our descendents. The higher the grade of intelligence among the people, the purer the morals which prevail; the more exalted the aspirations of our citizens, the easier will be the task of those to whom such a community has committed the trust and duty of government. May generations yet wiser and better take our places, control the destinies of our country, and make it a grander and more glorious arena in which to strive for all that makes life worth living.

On motion of Mr. Dyson, of Massachusetts, the invitation of Mayor O'Brien, to visit the harbor and public institutions, was accepted, and a committee appointed, consisting of Massachusetts inspectors, to confer with his honor on the proposed trip down the harbor.

Secretary Dorn, of Ohio, read the following letters from the leading corporations of Lowell and the Manufacturers' Board of Trade of Fall River, inviting the inspectors to visit their several industrial establishments, which were accepted:

LOWELL, MASS., July 31, 1888.

RUFUS R. WADE, ESQ., *President National Association Factory Inspectors, Boston, Mass.:*

DEAR SIR: The undersigned, representing the manufacturing corporations of Lowell, Mass., learning that your association will hold a National Convention of Factory Inspectors in Boston on the 8th of August, prox., would respectfully and cordially invite you to visit Lowell at that time and view our various establishments and industries.

Trusting that you will favorably consider this invitation, and that we may be able to extend to your body the courtesies of our several establishments, we remain,

Yours very truly,

FRANK F. BATTLES, Ag't Massachusetts Cotton Mills.

O. H. PERRY, Ag't Middlesex Company,

O. H. MOULTON, Sup't Hamilton Manufacturing Co.

ALVIN S. LYON, Sup't Lowell Co.

WM. H. McDAVITT, Sup't Appleton Co.

EDWARD W. THOMAS, Ag't Fremont and Suffolk Mills.

JOHN KILBURN, Ag't Lawrence Manufacturing Co.

## MANUFACTURERS' BOARD OF TRADE,

FALL RIVER, August 8, 1888.

RUFUS R. WADE, Esq., *Chief of District Police, Boston, Mass.:*

DEAR SIR: Our Board desire me to extend an invitation to yourself and staff to pay our city a visit and examine our industries. If it will be convenient and agreeable for you to do so, you will please name date of visit, and number that will be likely to come with you; also, time of arrival, that we may have carriages at train. We trust this will be favorably received and accepted. Awaiting your reply, we remain,

Very truly yours,

C. C. REMVILLE, *Secretary.*

Mr. Franey, of New York, was called upon to explain the inspection laws of his State, which he did in a very creditable manner.

On motion, Mr. Coon, of Massachusetts, was appointed Assistant Secretary.

On motion, the following committee was appointed to draft rules and regulations for the guidance of the annual conventions of the association: P. Callan, of New Jersey; John T. White, of Massachusetts; Hiram Blanchard, of New York.

By request of the committee, Secretary Dorn, of Ohio, was added to their number.

The Convention then adjourned till 2 o'clock P. M.

## AFTERNOON SESSION.

The Convention met at the appointed hour, President Wade in the chair.

The President stated that the trip to Lowell would be made on Thursday morning at 8:30, and returning, a visit would be paid Lieutenant Governor Brackett, at the capitol, after which the delegates would take the steamer and visit the harbor and Deer Island.

On motion, the invitation of Manufacturers' Board of Trade of Fall River, to visit industries, was cancelled for lack of time,

and the thanks of the Convention returned for the proffered hospitality.

Secretary Dorn, of Ohio, then read his annual report, as follows:

Since the adjournment of the first National Convention of Factory Inspectors, held June 8 and 9, 1887, the States of Connecticut and Maine have each created the office of Factory Inspector. Mr. William P. Kelley, of Killingly, was appointed Factory Inspector of Connecticut June 27, 1887, and Mr. Leonard R. Campbell, of Rockland, was appointed Deputy Labor Commissioner of Maine July 8, 1887. The duties of the latter are similar to those of factory inspector, and consequently entitles that official to identification with this organization.

The State of Wisconsin has increased the number of inspectors to two, and the State of New York to ten, since the adjournment of our last Convention.

In regard to the printing of the proceedings of the first annual Convention, an immense amount of unnecessary work was caused through the delay of some of my brother inspectors in failing to answer my letters promptly, in many cases requiring several letters to be written before an answer could be obtained, thus delaying settlement with the Secretary for money advanced for printing until late in October or November.

Fifteen hundred copies of the proceedings were printed and distributed as follows: New Jersey 500, New York 100, Massachusetts 200, Maine 100, Connecticut 30, Wisconsin 50, Ohio 520 copies, at a cost of \$157.50. The amount paid for boxing and expressing proceedings was \$5.51. Badges were also furnished delegates, to be worn during the Convention, at a cost of \$8, making a total expended of \$171 01.

While the office of Secretary may not be considered a laborious one, yet, to further the interests of the association, a great deal of correspondence has been carried on during the last two years at the expense of that officer—stationery, postage, expressage, telegraphing and other contingencies incidental to such office—and as no rule governing the same has, as yet, been adopted, other than a motion by Mr. Jennings, of Connecticut, that everything relating to the expense of printing, general management, etc., be referred to a committee composed of the chief inspectors of the different States represented, your Secretary feels a delicacy in presenting a bill for such contingencies, and will therefore leave the matter to the wise judgment of the delegates of the Convention.

The Committee on Rules and Regulations made the following report, which was adopted :

1. The Chief and Assistant Inspectors of workshops and factories, and any other duly appointed State officer, a part of whose duty it is to perform such inspection, shall constitute a National Association of Factory Inspectors of North America.

2. The officers of said Association shall consist of a President, two Vice-Presidents, a Secretary-Treasurer, and an Assistant Secretary, who shall be chosen by ballot at each annual Convention.

3. The time and place of holding the annual sessions of the Associations shall be subject to the call of the President.

4. The proceedings of each session of the Convention shall be printed under the direction of the Secretary, and published in pamphlet form, and each State department shall be supplied with copies at cost.

5. The Secretary shall annually collect from each department the sum of five dollars (\$5), or as much more as he may find necessary, for incidental expenses, in the proper discharge of his duties as Secretary.

The following telegram was received and read in regard to the health of Chief Connolly, of New York :

ALBANY, N. Y., *August 8, 1888.*

*To MR. JOHN FRANEY, Assistant Factory Inspector, Young's Hotel, Boston :*

Mr. Connolly has been confined to his room all week, and is not in condition to attend the Convention. He regrets exceedingly to be absent, and sends regards to members of the Factory Inspectors' Association.

WM. H. BUCKLEY, *Clerk.*

The following letters of regret were read :

BUREAU OF LABOR AND INDUSTRIAL STATISTICS,

JANESVILLE, WIS. *July 11, 1888.*

*Hon. HENRY DORN :*

DEAR SIR: Your favor of 9th inst. at hand. In reply, I am sorry to be compelled to say I can not be in attendance. I had fully intended to be present at the annual meeting, but I attended the Commissioners' Convention at Indianapolis, and from there I visited my old home

in New York, and have just returned. Hoping that I may be able to attend the next annual convention, I remain

Yours sincerely,

JAMES C. MOORE,  
*Factory Inspector.*

OFFICE OF STATE FACTORY INSPECTOR,  
MILWAUKEE, WIS., July 11, 1888.

HON. HENRY DORN:

MY DEAR SIR: Yours of July 9th at hand and contents noted. Was very much pleased to hear from you, but regret exceedingly to state that I will be unable to attend the annual Convention. The Brotherhood of Machinery Molders of North America will hold their Convention in Detroit on the 6th day of August, and as I am Treasurer of that body, it will be expected that I will be in attendance.

Hoping that the Convention may prove a profitable one, I remain,  
Yours respectfully,

HENRY CLAYMIER,  
*Factory Inspector.*

DEPARTMENT OF PUBLIC WORKS,  
TORONTO, ONT., July 17, 1888.

HON. HENRY DORN, *Chief Inspector of Factories:*

DEAR SIR: I have just returned from a tour of inspection, and find your cordial invitation to attend the annual Convention of Factory Inspectors, to be held at Boston, Mass., on the 8th of August, for which accept my thanks. I regret exceedingly that I cannot accept your invitation, more especially for the reason that I had hoped to form your personal acquaintance. Again thanking you, I remain

Yours truly,

ROBERT BARBER,  
*Inspector Factories Western District.*

DEPARTMENT OF PUBLIC WORKS,  
TORONTO, ONT., July 17, 1888.

HON. HENRY DORN,

*Chief Inspector Workshops and Factories, Columbus, Ohio:*

MY DEAR SIR: I am in receipt of your kind invitation to attend the Convention of Factory Inspectors, to be held in Boston on the 8th prox. At present it is impossible for me to state whether I shall be

afforded the pleasure to attend this year, but if not I hope to be with you next.

I desire to congratulate you on the success of your efforts in promoting the welfare of the Convention, which is destined to be of great benefit to employes as well as to employers. The meeting together of the Inspectors, and the exchange of ideas in regard to safeguards to machinery, etc., and the publication of the proceedings of the meetings, must necessarily tend to improve the condition of the workers, which is the primary object of labor legislation.

Wishing you every success in your good work, I remain

Yours Respectfully,

JAMES R. BROWN,

*Inspector Factories Central District.*

On motion, the President was empowered to decide upon the date of holding the next annual Convention.

Secretary Dorn, of Ohio, exhibited a model fire-proof stairway, which model was made and the system of fire-escape invented by himself. He also exhibited two elevator models, one with automatic gates attached, the other with an endless belt (the belt to be made out of woven wire cloth), one end of which is attached to the top of the cage, running over two rollers at the top and two at the bottom of the shaft, the other end being fastened to the bottom of the cage, thus closing all openings on floors where the elevator cage is not in use, thereby preventing accident from falling into the elevator shaft. The manufacturer of this design is Mr. James Grimme, of Cincinnati, Ohio.

The automatic gates have been found to be superior to all systems in use, so far discovered by the inspectors. The automatic gate elevator is also manufactured in Cincinnati, Ohio, by Schumacher & Banse, of the Queen City Manufacturing Company.

Speaking of his invention of fire-proof stairways, Secretary Dorn exhibited drawings, made by himself, of *outside* fire-escapes, thus to show the superior workings of an *inside* escape.

In referring to his reports to the Legislature, he says:

The first report, which I made in 1884, when the office of Factory Inspector was created in our State, was to the effect that nothing in the course of my inspection has more strongly impressed me than the

necessity of requiring all shops and factories of a greater elevation than two stories to be provided with a safe and efficient system of fire-escape. The duty of supplying safe-guards against the terrible casualties likely to occur in the event of conflagrations in crowded shops and factories is so obvious and imperative, that there can be no difference of opinion respecting it. It is of that class of self-assertive obligations which admit of no controversy, the only question being as to the best method of adequately meeting it. Nevertheless it is a fact, amply demonstrated, in the observation I have had, that very many owners and proprietors of shops and factories are wholly indifferent to this important duty, and I found some so utterly destitute of all concern for the safety of employes, as to refuse to provide proper escapes when their attention was called to the necessity of such provision. It is somewhat difficult to speak with calmness of men whose overweening selfishness has excluded from their natures every spark of consideration for their fellow beings, who, while liberally insuring their property against fire, so that in case of such a visitation—a danger always imminent—their pockets shall not suffer, will not expend a dollar for the security of the lives of those by whose labor they profit, and it is but simple justice that this class be compelled, by the mandate of inflexible law, to perform a duty which men of ordinarily human instincts accede to without a question. The frequent occurrence of fires which have their most serious result in the loss of human lives, furnishes fearful warnings that should not be heedlessly dismissed from attention, and I submit that the business of legislation can have few worthier objects than that of diminishing, as far as may be, the possibility of such calamities.

Many of the buildings used for shops and factories are from five to seven stories high, and generally the first three or four floors of the building are used as store rooms, the employes occupying the upper floors, escape from which would, in most cases, be extremely difficult in the event of a rapidly-spreading fire, and loss of life and serious bodily injury almost inevitable. Most of the buildings are improperly constructed with reference to means of egress, the ingenuity of the architects having apparently been exerted to secure the greatest possible economy of space in the matter of stairways. Some of these buildings are provided with but a single stairway, and where there are two or more they are generally located so near together that a fire which would render any of them useless as an avenue of escape would be very likely to do so with all. In many cases, also, these stairways are located near elevators, which are most potent aids to the rapid progress of fire.



While it is not the province of the State to require that these faults and defects in the construction of buildings shall be remedied, it is unquestionably within the rightful power of the State to demand that the security which the builders have failed to provide shall be supplied in some other way, and a thorough system of fire escapes is the only other practicable method. The use of straight ladders, as a substitute for some improved fire-escape, on buildings over two stories high, should not be allowed, since they are worse than useless as a means of escape. Not one in twenty who should attempt to reach the ground in this way would get there in safety. They might escape the fire only to find death or permanent injuries from being precipitated to the earth below.

The most appalling calamity that Cincinnati has known for years, occurred on the 21st day of May, 1885, by which sixteen lives were lost by fire. After carefully making a personal investigation of the building, the egress afforded, etc., it came to my mind that something must be invented by which such calamities could be prevented, as even outside fire escapes would prove to be of little avail in such conflagrations. After years of study, I have invented, I honestly believe, the best fire escape ever constructed. It is simple in construction, requires no more room than the ordinary stairway, and does not disfigure the outside appearance of a building as the balcony incline ladder and other inventions now in use.

An ordinary stairway is built out of iron, two of which are required in a building, located so that they are in opposite direction to each other. They are inclosed with a brick wall, twelve inches in thickness, which forms a shaft, the same as used for elevators, reaching from the bottom to the top of the building. There is no communication with the stairway from the *inside* of the building. This is done for the purpose of preventing smoke as well as fire from entering the stairway in case of a conflagration. An iron balcony is built on the outside of the building at each story, a door leading from each floor, the door from the floor opening outwardly, and is constructed along side of shaft leading into the balcony, where another door is reached, which opens inwardly to the shaft. The doors on each floor open against the adjoining windows, so that a person trying to reach the balcony is not exposed to the flames, should the draught carry the same in that direction. In case of fire, not a particle of smoke can get into the stairway, and escape is made easy, even if the entire building be on fire, on account of having all communication with the stairway on the outside.

This escape evidently obviates a serious objection made to all others,

viz , the fear individuals have of ascending them especially from very high buildings.

The opening of the doors outward and inward are so constructed that in case of emergency they can not be blockaded, as is very often the case in serious conflagrations.

The shaft is lighted by making the doors entering the same half-glass pannels and the top of the shaft is also provided with a skylight which furnishes sufficient light to make the stairway as well lighted and ventilated as possible.

The invention of Secretary Dorn was unanimously approved by the State Factory Inspectors of the country, which will be seen in another part of the proceedings, by a resolution adopted by the Convention.

Mr. Dyson, of Massachusetts read a lengthy and interesting paper on "Elevators, Their Dangers, etc.," as follows :

Of the many duties of the factory inspector, none is of more importance than those connected with elevators and it is becoming of greater importance every year. Whereas a few years ago an elevator was a curiosity, to-day it is in most general use, and has become a necessity. There is no way of computing the number of persons who daily use this mode of conveyance; but we know it must be thousands - yes, hundreds of thousands. When we consider how few of these passengers know or can know anything of the safety of the elevator on which they ride, or realize the danger to which they may be subject, we see how important it is that this mode of conveyance, equally with railroads and steam boats, should be under the supervision and control of State authorities.

Massachusetts, as often in similar matters, is in the van, and has taken important action towards protecting her people. In 1877, a law was passed for the guarding of the openings to elevators and hatchways. In 1882, still further legislation, which reads as follows: "All elevators, cabs or cars, used for freight or passengers, shall be provided with some suitable mechanical device, to be approved by the inspectors, whereby the cab or car will be securely held in the event of accident, to the shipper-rope or hoisting machinery, or from any similar cause."

In 1880, the inspectors were given additional power to enforce com-

pliance with the law by entirely forbidding the use of any elevator that they believed to be dangerous.

It is with reference to this law, and the work under it, that I wish especially to speak, and of what has been learned by nine years of experience. All styles of elevators may be comprised in one or two classes, viz: Those that need safety devices, and those that do not.

The latter class includes all those elevators that are raised by a support below the cab or car, as the "plunger elevator," so-called. The other class comprises all elevators that are raised from above by means of ropes or cables, and includes the common belt, steam and hydraulic elevators. The one class gives an elevator that even the non-expert can see to be as nearly absolutely safe as can be desired, and whose safety cannot be increased by any so-called "safety device."

The other style of elevator, as it hangs in mid-air, can but suggest the many dangers to which the nature of its construction must subject it, and the need of every safety device that is of any value. For the protection of this class, hundreds of so-called safety devices have been invented, and many of them have been adopted by the elevator manufacturers, and used with their machines.

The language of the law, in this State, is very explicit and exacting, and certainly places a grave responsibility on the inspector.

At once arises the question, "Is there any mechanical device which will securely hold the car in case of accident *from any cause?*" If there is not, how can the inspector approve *any*? Of course, every elevator builder will tell you that his particular device satisfies the demand for safety, and at the same time intimates that the devices of the other companies are of little worth.

When the inspectors began their work under the laws of 1882 and 1883, they found hundreds of these rope and cable elevators provided with so-called safety devices, many of them of recent invention, that were worthless, to the surprise of the parties using them.

It would not do for the inspector, although given great power under the statutes, to at once arbitrarily condemn all these elevators and declare that no safety device gave the requisite protection.

Most of the devices which were claimed to satisfy the law, were new and untried. It was proper that we should move cautiously in the matter, until we could see what time and experience would prove

From the first, a large number of these so-called "safety devices" were brought to our attention to be tested, and many of them passed what is said to be a satisfactory test. It is not difficult to make a mechanical device that will operate under certain conditions all pre-

pared, for then you can generally have a successful test. Yet, I believe that even with the conditions made favorable for any particular device, it can be put to a test where it will not work, and to no severer test than it may meet in the event of accident.

I find many owners of elevators unwilling to risk the damage to their property by allowing the inspector to try such tests. If such may be the action, or rather the non-action, under favorable conditions, what can be said of their probable action under unfavorable conditions, so frequently occurring—the neglect of oiling, the lack of proper adjustment of parts, the wear and tear of continual use, the poor workmanship or material, in the scramble of competition, to satisfy a false economy with a low priced product, the placing of the machinery in some dark, out-of-the-way place to avoid using some valuable floor space, the unexpected obstruction to the working of the safety device. All these might be illustrated by examples of actual accidents, accompanied by loss of life and limb.

Furthermore, it is always the unexpected that happens. It is the breaking of something for which no safety device had been provided. The elevator builders have realized this, and have multiplied the variety of safety devices until they almost cover their machine with them, at the same time increasing the complexity of the same. And it may be rightly said that there are almost as many opportunities for accidents as there are parts to the machinery, and it is therefore impossible to protect at all points. This can be seen by observing the variety of accidents that are so frequently occurring. These dangers are recognized by the best of elevator builders.

One of the leading manufacturers of Boston, after narrating in their catalogue the many dangers of cable elevators and their safety devices for preventing the same, show their own lack of confidence in the devices by recommending, in addition to the adoption of the air cushion, a device so certain in its action, and so simple in construction, that it should *always* be used where room is available.

Otis Brothers, the great cable builders of New York, have this year been making tests with the air cushion device, and doubtless recommend them.

As I said before, we have seen these trial tests of safety devices made successfully under favorable conditions, and yet our years of observation and experience show us that the only fair test—time and actual use—proves that cable elevators do fall, although made by the best builders in the country, and supposed to be supplied with the best of safety devices. This is shown by the accident in New York City last

year, by the breaking of a pinion wheel ; the recent accident at Springfield where the car caught, cable unwound, allowing the car to fall ; by the late fall of the elevator in the Quincy House, said to be by the slipping of a belt. I understand all of these elevators were built by different companies and leading manufacturers of the country. Many other similar cases could be cited. I in nowise mean to disparage these manufacturers, for many of them are deserving of great praise, for the money and efforts they have expended in the endeavor to protect humanity from the danger of that natural law—the law of gravitation.

Though the inspectors, after these years of experience with cable elevators, cannot approve of many mechanical devices as certain to hold the car securely in case of accident, as set out in the statute, they would not feel justified in condemning all cable and rope elevators, for in some places and conditions, they are a practical necessity.

It seems to me that inspectors can, and it is their duty to, under our laws, do much for the protection of the public. All of the hoisting machinery, as far as possible, should be placed in a light and accessible place ; the rate of speed should be regulated by the inspectors, or by further legislation, if necessary,

Though in America, time is money, there are but few places where the rate of speed for freight should be over one hundred feet per minute, and not over two hundred feet per minute for passengers. This is fast enough for all ordinary service.

Fortunately, the public itself is looking with disfavor on the fast running elevator. This applies to that class of elevators which are drawn up from above by cables or ropes. Now, while many have been working for improvements in this class, others have sought for the safety of mankind by an opposite course, and instead of seeking the end by complicated machinery, they have striven for greater simplicity in construction. I refer to that class that I said need no safety device, so-called, and that includes the direct plunger and telescope elevators.

The method of lifting a car by means of a piston or plunger is not new. In fact, it was one of the first in use, and to-day is practically the only method used in England and Europe.

Though this style of elevator has not been so widely introduced in this country as the cable machines, it has met with marked success in certain localities, and has been continually improved and adapted to public use, especially during the last few years

It may be said to have now reached a new era of development in

the perfection of the sectional or telescope elevator, which has the same principle of absolute safety as the single plunger elevator, and at the same time avoids the chief difficulty sometimes found in the construction of the latter.

What is it that commends these elevators for safety? First, the simplicity of construction. As you all doubtless know, the elevator consists of an iron cylinder sunk in the ground with a closed bottom and a packing box on the top. Into this cylinder passes the iron pipe called the piston or plunger, which lifts the car or load.

If the elevator is a single piston, its length is the height of the desired run. If telescope, there may be two or more pistons, which slide into each other, and whose extended length is the desired run.

This, with the valve and the valve-rope, constitute all the machinery necessary. This elevator can be run without ropes, drums, or any of the other complicated parts that threaten accidents. A cable is sometimes used to run a counter-weight to the car, and the only accident I ever heard of in this style of elevator was when the counter weight was made heavier than the car, and the latter becoming detached from the piston, was drawn to the roof, and then fell. But such carelessness as over-counter-weighting is easily avoided.

I have observed these elevators for years, and personally examined many of them, and have never known of any accident or chance for accident from the breaking of the machine. The car, with its load, always rests on the strong column of wrought iron, steel or brass, as the plunger may be made of either, and whatever weight may be placed thereon the car cannot descend any more rapidly than the water can pass out of the cylinder through the valve and opening made for that purpose. These cylinders are now made of wrought iron, and if the pressure of any weight put upon them should be greater than the cylinder could stand, the only result would be the opening of a seam therein, through which the water would escape and the elevator slowly descend.

You may say, "Why, then, is this style of elevator not universally used?" Largely from false ideas of economy of those who own buildings, and use elevators. This is strictly a hydraulic or water elevator, that is, water must be used as a power to operate it.

When the pressure of the public water supply is sufficient, the elevator has simply to be connected with the water main, and then no other style of elevator can be more easily and economically used. When such a pressure is not found, it is necessary to use a pump. Many of

our buildings, and especially factories, have a pump for protection from fire. These pumps can be used with a hydraulic, and by being thus adapted are all the more efficient in case of fire, for they would be at all times ready for instant service.

The owners of many buildings and factories believe that the cable elevator, connected by belt to the shafting, costs them little or nothing to run. This is a mistake, for any educated engineer can show you in figures just what it costs for the power to run a belt elevator, and it is as much or more than it costs to run a pump.

But what, doubtless, has more influence with the purchaser is the extra first cost of the hydraulic elevator with pump over the cheap belt elevator, and this is a fact. But, of how little consequence is this extra first cost, when it is considered that an elevator is a permanent part of the building or plant? And the extra cost of the one style furnishes a machine absolutely safe, occupying little floor space, so simple and yet strong in construction that the annual expense for repairing and renewing of parts is next to nothing, while the cheaper class, from the nature of its construction, must require continual repairs and renewal of cables and other parts, occupies valuable floor space, unless tucked away in a dark corner, which is a dangerous practice, must be frequently inspected and watched to avoid accidents, and renders the owner liable to the lawsuits we see so frequently in the courts, brought by the injured employe or passenger, for large damages for injury suffered by the fall of the elevator.

Many of our manufacturers and builders are fast learning that the cheaper machine is the more expensive in the end. The well known Washburn & Moen Manufacturing Co., of Worcester, now using perhaps twenty of these plunger elevators in its great establishment, will have no other, and would not take a cable or belt elevator at any price.

There is one feature of the direct plunger elevator that frequently largely increases its first cost, and that is the sinking of the hole in the ground for the cylinder. It is probably this, more than anything else, that has retarded the general introduction of this style of elevator. Of course, there is only one way of avoiding a hole as deep as the height of the run, and that is by telescoping the pistons.

Some years ago, many experiments were made to perfect such a machine, without the best results. Time and money has continued to be expended in inventions and improvements in this direction, and to-day a satisfactory telescope elevator is produced, and is being largely manufactured and introduced by the Worcester Elevator

Company, of my city. It avoids the sinking of the whole or cylinder to any great depth, and yet preserves the valuable elements of the direct plunger elevator.

Having been asked to speak upon this subject of elevators, and especially with reference to their safety, I was naturally led to discuss the merits of the plunger elevator, because it is a style of elevator that has been more extensively manufactured, more generally used, and more thoroughly tested in my district than in any other part of this country, and furthermore, after many years of experience, I believe we are working in the right direction in seeking a machine that is itself safe rather than taking one that is dangerous, and seeking to find devices that will protect it.

On motion, the Convention adjourned, to witness an exhibition by the Boston City Fire Department, to meet again in evening session at 7 P. M.

#### EVENING SESSION.

The Convention met at the appointed hour, President Wade in the chair.

Mr. Buxton, of Massachusetts, read an important paper on Industrial Laws, and the employment of children in factories, as follows:

The first statute to regulate the compulsory education of children, was enacted in Massachusetts about ten years ago. A similar law has existed in England for many years, but it was new in this country, and much complaint was met with at first about the State interfering with private enterprise. The people, ever alert in defending their liberties, demanded to know by what right the State dictated whom they should or should not employ. Why was it not an advantage to the country to employ these thousands of children, and thus make their families self-supporting?

In reply, we explained that in this republic the man is a citizen as well as a laborer, and if he be not fitted to intelligently perform his duties toward the government, he is the most expensive and dangerous person they can employ; that children deprived of school privileges were robbed of the means of becoming self-reflecting citizens, and valuable members of society.

It was easy to convince intelligent New Englanders that morality



and knowledge are necessary for good government, for looking back over the history of Massachusetts we find nothing more marked than the prominence given to education.

Immediately upon landing, in 1620, one of the first acts of the Plymouth Colonists was to provide school-houses for the children.

In 1642 the Selectmen were required by law to see that provision was made for the education of all children, "So as to be able to read and write, and have knowledge of the capital laws." They well knew that the children of to-day would be the men and women of the morrow, and if they were not educated sufficiently to understand the "capital laws," they would not advance in civilization or be able to govern themselves, much less others.

Again, in 1647, another step was taken in the right direction, when every township of one hundred families were required to maintain a grammar school, in which boys could be prepared for Harvard College. Thus we see that legislation regarding the education of children did not begin in this generation, but commenced back in 1620, when the Pilgrims landed at Plymouth.

This statute regarding the compulsory education of children is only one of the numerous additions made, from time to time, to the original legislation, to meet the changed conditions of society and public opinion.

It will be noticed that these early laws have reference only to the providing of the means of education - the desire for knowledge was then so prevalent that nothing more was necessary.

The causes which have brought about a change of sentiment in this respect, and to make the compulsory act desirable, are too well known to be enumerated here.

It is generally conceded by the intelligent people of to-day, that it is not only the right of the government to provide the means for education, but its duty to require it also. The ground of this duty is the simple fact that education is the pillar and support of a republic. Illiteracy on the part of a nation, to whom is intrusted the privilege of self-government, is a great peril to its very existence. A government that aspires to be a model among all free nations, should not confess that it has no right, directly or indirectly, to a controlling influence in the education of its own children.

Now, education does not create, or even absolutely secure intelligence. Its object is to promote the development of intelligence; to afford a stimulus to its growth, and to provide the individual with the necessary means for that self-culture by which native capacities

are increased. In other words, it draws out all that is best in the nature of the person, and gives the child a chance to discover that it possesses faculties which, if developed and educated, will greatly enhance its happiness and better its condition. But children must be healthy in both mind and body to derive this benefit from the schools, and this brings us to consider another aspect of this question of child labor.

The argument is often advanced, that children had better be at work than running the streets, and learning all manner of wickedness. My only excuse for introducing so trite a saying here, is because it is so hackneyed, and also because it is a very mischievous expression, as multitudes of good but thoughtless people accept it as logical, and a justification of a serious evil. Now, first, it is self evident that it can only be the children of very ignorant or very vicious parents who are reduced to the dire necessity of working or running the streets during the years of childhood and early youth; and, secondly, it is also self-evident that labor, at anything a child is capable of doing, for ten hours daily, is injurious to the mind of any child under sixteen years of age. The labor may not be hard, the air may be as pure as that of the school-room, but the weariness of the endless repetition of the mechanical action, the continual over and over of certain physical motions, giving no opportunity for change or variety, is very depressing and tends to dull and stupify the mind of a growing child.

Compare the children who have passed a year in even the poorest of our schools, and those who have spent the same length of time in one of the best of our manufacturing establishments, and comment would be needless. The tendency of the one is to awaken the dormant faculties of the mind, stimulate the sluggish powers of the soul, and give us men and women with keen, active, wide awake brains, wise, intelligent souls in healthy bodies. The tendency of the other is to dwarf the soul, stupify the mind, and reduce the human being to the level of a machine, and a dangerous machine, also, because brutalized and degraded.

There is another benefit derived from the training of the schools, which the children of this class seldom receive elsewhere, and that is a certain discipline of mind and conscience which develops within them an enlarged respect for the rights of others, which makes them more patient under control; their sense of justice is also stimulated and quickened, while they are enabled to secure their rights without appealing to brute force. Overseers and others having charge of

children are unanimous in their testimony regarding the greater ease with which children who have had the benefit of the schools are guided and controlled, and from being violently opposed to the law are now heartily in favor of it, not only for the benefit conferred upon the children, but for the help they themselves derive from it.

Again, a child who has not been taught to obey rightly, will never be able to command rightly, either themselves or others. Many men employed in these factories have said, with tears in their eyes, that if this law had been in force when they were boys they would not be in the humble positions they now occupy.

Overseers pronounce the labor of a child under fourteen years of age undesirable and unprofitable, but parents, ignorant and selfish, or ignorant and vicious, insist upon the child earning something at an age when many would think they still belonged in the nursery. So, for the sake of securing the services of the older ones which are profitable help, they employ the children and often co-operate with the parents in seeking to elude the vigilance of the inspector, and employ them unlawfully.

The better class of manufacturers, after these years of trial, frankly admit they are benefited in many ways by the change, and cheerfully co-operate with the inspector in securing the enforcement of the laws. They are wise enough to realize that educated labor is more desirable in many ways—the quality of the work accomplished is better, the people are more steady and contented, they are competent to manage their own affairs and secure their own interests, and never, except through misfortune, become objects of charity.

Here we have the testimony of the more enlightened operative, the overseer and the manufacturer, all in favor of the laws, but in spite of this, for the reason given above and others of a kindred nature, it requires the constant vigilance of the inspector to secure honest enforcement of the statute.

It will be seen that ignorance is responsible for most of the difficulty. Even selfish or vicious parents, were they not also ignorant and short-sighted, would see and realize for themselves that it is for their own advantage as well as for the benefit of the child that he be well educated.

But there is one complaint with which we often meet, and one so reasonable and just, it deserves our immediate attention.

The necessity for these laws has existed but a short time, and only a small proportion of the States have adopted them. The beneficent in-

fluence of the statutes in the States where they have been fairly tested is so apparent, and it is only a question of time when they will have become universal.

In the meantime vexatious complications are constantly arising in towns adjoining States where these laws do not exist, which bear hardly and apparently unjustly upon the interests of our law-abiding manufacturing communities. The country at large is also suffering severely from labor troubles of various kinds and the prosperity of the nation would seem to demand some speedy remedy.

I would respectfully suggest to this convention the advisability of considering whether we, as inspectors, to whom has been intrusted the enforcement of this compulsory educational law, have not some responsibility in the matter, and also the need of adopting some measure to impress upon the country the urgent need of concerted action in the matter.

The prosperity of the State is so closely allied to the prosperity of the citizen, that one cannot be injured without detriment to the other; if one State suffers from labor troubles the other States are affected in a lesser degree.

I do not hesitate to affirm that the principal cause of the scarcity of strikes in Massachusetts is due to the proper enforcement of these laws, seconded by the general intelligence of the people. Educated labor seldom strikes. Abolish ignorant labor and you abolish the office of the demagogue. Inflaming the passions of the employed against the employer would be impossible in an intelligent community, and thus class strife, with its long train of attendant evils, would be unknown. Compute the millions of dollars that strikes have cost capital in this republic the last few years, and let capital say whether it is good economy to employ ignorant labor. I mention the money aspect of this matter in deference to the prevalent custom of judging everything from a financial standpoint, but all thoughtful people will agree that this is the most trivial side to a trouble which has rapidly developed in a few years to very serious dimensions, threatening the peace and prosperity of the nation.

The demagogue, openly taking advantage of the ignorance of his fellow-citizens to influence them to their own destruction and the detriment of the government, is a sad spectacle to be witnessed in a republic, and the condition of the country which makes such transactions possible, is one of the gravest problems confronting the statesman to-day. It claims our attention from the fact that ignorance is at the

bottom of all the difficulty, and we would be unfaithful to the trust committed to our care if we did not seriously consider the matter in connection with the working of this law. It is one of the measures adopted by our legislators to stem the tide of ignorance and anarchy which is threatening to engulf the nation as in a flood, and a protection to the poor and oppressed, who for good or evil, are flocking to our shores in multitudes from all the nations under the sun.

I do not unduly magnify our responsibility when I assert that much depends upon the manner in which we discharge our duty. Let us seek to execute the laws with such wisdom of method that the good resulting from them may be plainly apparent to the whole country. If there are any defects in the law itself, or in our manner of enforcing it, let us seek them out to the end that they may be remedied, and that we may have the assurance that our efforts will hasten the day when education and intelligence will be so general that the country shall again be free from those evils resulting from ignorance, and acquit ourselves as good citizens of a government which deserves the best service we can render.

Mr. Coe, of New York, was called upon, and spoke at length in reference to employment of children in factories, from his personal observation, which he did in a very forcible and creditable manner.

Messrs. Davis, of Rhode Island, McDonald, of Ohio, Hall, of New Jersey, and Campbell, of Maine, also spoke on child labor, handling the subject very intelligently.

Secretary Dorn, of Ohio, arose and said that his report to the legislature relative to child labor was such that he thought it advisable to repeat a portion of it, as follows:

The subject of child labor has engaged the earnest attention of publicists and philanthropists for generations, and in the general progress of ameliorating influences and agencies, this matter has received a share of consideration. That it has not obtained that full measure of regard which its great importance merits, will not be seriously questioned by any one whose experience or observation give him authority to speak.

Legislation has bravely sought to baffle the cupidity and selfishness of those who would profit by the labor of children, but its success has been only partial and irregular, and throughout this enlightened nation thousands of children, of tender years, are now laboring ten and

twelve hours a day in shops and factories, the great majority of whom should be acquainted with no severer tasks than those of the school and the home.

While it is true that much of the work required of children thus employed is not of a severely exacting nature, yet it must be maintained that the practice of subjecting young children to a daily round of labor for which they receive a mere pittance in the form of wages, is a wrong alike to the children and to the State, and wholly antagonistic to the enlightened and liberal sentiment of this age.

The tens of thousands of children throughout the country who are in this way deprived of the opportunity to obtain as much of an education as would enable them, when grown to adult age, to understand the obligations of citizenship, is a dark blot upon our character as a people, which our advanced civilization and wonderful material progress do not atone for. It is true that ample provision is made for securing to every child in the State at least an elementary education, but the State is still derelict if it fails to compel those in whose behalf such provision is made to take full advantage of it. Now it is sufficient to declare, in the form of a statute, that this must be done. *Laws do not enforce themselves. There must be an active, energetic and vigilant executive force behind them, fully armed with the power to put them into effect.*

There is hardly any limit to what may be said upon this subject, but the object in referring to it here is simply to bring it to the thought and attention of the legislative power, and not to give to it elaborate discussion. Such discussion, indeed, it cannot need with intelligent men, who intuitively understand that the intellectual and moral training of the youth of the commonwealth is of far greater importance to its future welfare than can be any consideration relating to its merely material affairs. But the policy of controlling and restricting child labor finds approval as well upon economic as upon moral grounds. There is no gain to the general welfare from this class of ill-remunerated toil. Its products are not materially, if at all, cheapened to the consumer. The profit is reaped by the employers, and it is the heartless cupidity of this class, incidentally aided by the improvidence of parents, that is responsible for the extensive prevalence of child labor. To successfully combat this sordid instinct, there is required something more aggressive than a simple statutory declaration of hostility. As previously observed, there must be a zealous and vigilant executive force, amply supported, behind the declaration.

Ever since the enactment of the law known as the "Child Labor

Law," prohibiting the employment of minors under twelve years of age, and fixing ten hours per day as the maximum length of time a minor under eighteen may be required to labor in any workshop or factory, there has been an active and persistent opposition to the enforcement of its provisions by a few manufacturers. But it is a gratification to know that the opponents of this wise and humane statute are so limited in number that they can almost, if not quite, be counted on the fingers of one's hand; but they are, as a rule, wealthy, and what they lack in numbers they endeavor to make up in activity. If the law is wrong, it should be repealed, or at least its objectionable features eliminated. If it is right it should not be disturbed, unless it be to so amend it that its evident intent shall be so plain as to be beyond cavil.

Is the law wrong? But few establishments in the State object to it. Their grounds of opposition are not that ten hours per day is not as long a time as boys and girls under eighteen years of age should be required to labor, but that a compliance with the provisions of the law would seriously interfere with their business as at present conducted. This, put into plain English, means, if it means anything, that the making of a few dollars more or less by the manufacturer is of more importance than the welfare of the rising generation; that the making of money is the main object of life, even though it be necessary in seeking that end to sacrifice the health and future prospects of all those youth the poverty of whose parents deprives them of the privileges and advantages of the public schools, and compels them to accept employment wherever found, and upon whatever terms tendered. Such a principle is abhorrent to the nature of every man who is not absolutely blinded by avarice. It makes the man subordinate to the dollar. It takes no account of life and its enjoyments, usefulness and possibilities, and destroys all the noble aspirations of which a human being is capable, that the pecuniary interest of one man may be advanced.

It is further claimed by some manufacturers that they employ children under twelve years of age only for the good of the child and the benefit of its parents, and therefore they dislike to discharge them. This argument in favor of the repeal of the law will not have much force with any one who knows the motives that govern business men in their actions; nor will it satisfy those who have some regard for the future intelligence and capacity of those upon whom the State will, in a few years, have to depend for the direction of its affairs and the maintenance and perpetuation of the blessings of civil and religious freedom. The argument is unworthy of serious consideration. The motive that prompts it is so transparent that no one need be deceived.

It is also asserted that boys and girls under eighteen years of age are perfectly satisfied with the rule of employers that require them to work twelve and thirteen hours per day, and that they have no desire for a change of work-hours. This claim is so ridiculously absurd as to excite a smile. To say that youth of that age, or even adults, are satisfied with such hours of labor, is to talk supreme nonsense. It is contrary to the plain dictates of nature; it deprives them of all opportunity for recreation, for reading, and for amusement. Every man knows from his own experience that it is utterly destitute of even the semblance of truth.

The law is right, and should be allowed to stand. It is a law in the right direction. It is in the interest of humanity and justice, and in accordance with the enlightened sentiment of the times. While the State has upon its statute books a law making eight hours a legal day's work, even for adults, it certainly would be the height of inconsistency to say that a manufacturer shall have the privilege of compelling minors to labor any number of hours his selfishness may dictate. The best interests of the youth of the State, and therefore of the State itself, forbid such a policy. As well turn back the hand of time fifty years, and obliterate from the face of the earth the progress made by the human race in the last half century. All over the world the demand is for a shorter work-day, and in England especially—monarchical England—the legislative power as well as public opinion have recognized the rightfulness of the demand. In almost every northern State of this Union legislation has been had upon this subject, and in some of them to a far greater extent than in Ohio. No State excels, and but few equal, Ohio in the munificence of her appropriations for the unfortunate insane, blind, deaf and dumb, and other deserving objects of charity. Will she be second to any other in her care of her youth, and in protecting them from the cruelty too often practiced upon them in some of our factories and workshops? It is now too late in the nineteenth century to even think of a retrograde movement in this matter.

The claim that business cannot be successfully carried on unless the employer be allowed to work children more than ten hours a day is one unworthy of any man, and is in direct conflict with well known facts. A business that cannot thrive without such a sacrifice does not deserve to thrive. The sooner it is wiped out the better. It is not legitimate, and should in no way be encouraged. Who will justify the sacrificing of helpless children, depriving them of all opportunity for healthy recreation and innocent amusement, destroying their future prospects by making unthinking and unfeeling machines of them, that



some one may thereby thrive and grow fat? Surely, no one who takes any interest in the future of his race, or who desires to have the progress of the past and present—mental, moral and physical—go on unchecked and unimpeded in its humanizing and elevating career, can for a moment countenance such a proposition.

It is to be hoped that the General Assembly will give no heed to the representations of any party desiring the repeal or essential modification of the "Child Labor Law." It was enacted in response to the demands of the best people of the State, and in the interest of the civilization of the age, and its beneficent features should not be frittered away, and children left a helpless prey to men who worship at no shrine but at that of the almighty dollar. It has so far worked nothing but good, and promises still greater blessings in the future. It is willingly accepted and cordially approved by an overwhelming majority of the manufacturers of the State. It benefits the children and wage-workers generally, and inflicts wrong on no one.

In conclusion, let me again repeat, we must not bring our children up in ignorance. Let us educate them, and then the best interests of the country will be subserved, good and wholesome laws enacted, an easy enforcement of the same will be brought about, poverty will be driven from the land, our duty to our offspring will have been performed, and success will crown our efforts.

On motion, a committee of six, consisting of Messrs. Franey, of New York, Campbell, of Maine, McDonald, of Ohio, Buxton, of Massachusetts, Davis, of Rhode Island, and Hall, of New Jersey, were appointed to prepare resolutions, as the sense of the Convention on compulsory education, prohibiting children under the age of fourteen years from working in factories or workshops, defective machinery, buildings, etc., and report the same to this Convention before adjournment.

Mr. White, of Massachusetts, read an important paper on fire-escapes, as follows :

The intense dread which all persons have of death by burning, creates a greater public interest in the matter of protecting the inmates of factories and public buildings from fire than attaches to any other of the statutory regulations governing the inspection of such buildings. Yet the statutes in this regard are less definite in their provisions, and there is less in them to guide an inspector in his work, than in any

other of the laws which we are called upon to enforce. Indeed, what little there was in the laws of this State to define what should constitute proper means of egress and escape from fire in such buildings, has been repealed, and the whole matter left to the judgment of the inspectors.

Whether this was wise legislation or not, the duty and responsibility is forced upon us, and we must carefully consider how we can most effectually carry out the purpose of the new statutes which evidently is that more careful precautions shall be taken in this respect than were ever before thought to be necessary.

With the exception of some few provisions for hotels, lodging and boarding houses, contained in Chapter 251 of the acts of the year 1883, all the present statutory regulations guarding against danger to life from fire in buildings are embodied in Chapters 316 and 426 of the acts of the legislature of the present year.

The first mentioned Chapter makes provisions in regard to buildings to be hereafter erected, and the other for buildings already in use. The law in relation to new buildings will be comparatively easy to enforce, as the plans and specifications of all such buildings must be submitted to an inspector for his approval before the building is erected. The inspector may require that such changes shall be made as he may judge to be necessary to secure safety, and also that proper fire-stops be put in to prevent the spread of flame and smoke. This last mentioned provision is a very important one.

It would be of little use to put a fire-escape on a powder house, and hundreds of the buildings now occupied for tenement and lodging houses would, under favorable conditions, burn so quickly as to render nearly useless any means of escape that can be provided. The late fire in a tenement-house in New York is a striking example of the terrible results of such methods of construction.

I have lately inspected a public hall in the fourth story of a building, where the only stairway, and that a narrow one, is built around a well-room intended for an elevator. There is no elevator there now, but the open shaft makes an excellent flue for flame and smoke.

Another case is where there are fourteen tenements in a wooden building, the lower story of which is occupied as a furniture store, which is completely filled with goods, including a barrel of varnish, and is without even a partition to prevent the spread of fire, and the ceiling of which is not plastered; nothing but the bare timbers and floor between all that combustible matter and the sleeping inmates of the bed rooms above.

The law requires that the means of escape from fire in this building shall be sufficient for all the persons to be accommodated therein. I can cover the outside with fire-escapes, but I can do nothing to prevent the spread of fire as I could do in a building to be hereafter erected for such a purpose

Evidently the law is not broad enough in its provisions for buildings already in use.

In one way such cases are easy to deal with. There is never any doubt that everything should be done, which can be done, under the law, to make them safe.

Another class of buildings are harder to decide upon. They come very near being safe, so near it that in many cases a few dollars expended in fire-stops when they were constructed, or a slight change in the plan, would have saved a much larger sum in fire-escapes.

The owners of such buildings frequently do not see their danger. They think the buildings are safe, and the architects, if there were any, are sometimes willing to protect themselves from blame by asserting that the inspector is "cranky" and unreasonable in his requirements. But in all cases the responsibility now rests on the inspector. It is his certificate, and not that of the owner or architect, that is to be posted up in the building. Before that is granted he may require a compliance with the law, but, the certificate once issued, he must be content to bear the blame for any neglect to exercise his authority if any disaster occurs.

And this brings us to the most important subject of this paper: What shall be required, and what may be considered sufficient means of escape from fire, in the various buildings covered by the new laws? The almost infinite variety of the conditions he will meet with in his work precludes the possibility of any very definite rules to govern an inspector in deciding these questions. He must inevitably be controlled by his own judgment in every case that comes before him. Still, there are some things which it seems to me should be done in all cases, and some others which should not be done, and I will endeavor, in a brief way, to indicate what these things are.

In considering this subject, the buildings coming under the law may be divided into two classes; the first class including school-houses and places of public assemblages only, and the second class, factories, workshops, hotels, boarding, lodging and tenement houses.

In the first class, the regular and ordinary ways of egress ought always to be made as safe as possible. In my judgment a school-house

ought never, under any circumstances, to be provided with what is commonly called a fire-escape; that is, a flight of steps, open to the weather, and so liable to be obstructed by ice or snow just when most needed, and down which only one person can go at a time. If the ordinary ways of egress are not safe, beyond a reasonable doubt, a good, wide, easy flight or flights of stairs should be constructed, entirely independent of the other stairways, properly connected with the rooms, and completely inclosed from the weather. If all school-houses were restricted to two stories in height, as they should be, there would be no trouble in securing safe egress, and if wood-work of all kinds, except for the treads and hand-rails of the stairs, was banished from the stair case halls, the ways of egress could be made safe from three or four-story buildings, if want of land made them necessary.

Where public halls are located above the first story, the stairways leading to such halls should be fire proof, and should have no connection with any other part of the building. It is not pretended that these provisions for safety can all be required under the present law, but much may be done in that direction by a judicious use of fire-stops, and even a wooden building may be so constructed that it will be almost impossible for a fire to work quickly enough to prevent the inmates from getting out in safety, provided there is anything like a proper arrangement of the stairways. In a certain school dormitory that was burned last winter, the fire, which evidently caught in the cellar, was first observed coming out through the roof nearly the whole house being, almost at the same moment, filled with a dense smoke, the fire having quietly worked its way up through the partitions until it probably came in contact with, or caused a leak in a gas pipe, when an explosion followed sufficient to burst off the plastering and liberate the confined smoke. Luckily, it occurred in the day-time, or some of the forty young ladies might have been smothered in their beds or burned to death in trying to escape.

The occurrence of such a fire as this ought to be made impossible in any building hereafter constructed, to be used for a similar purpose. In this latter class of buildings, however, and more especially in factories and hotels, it is sometimes very difficult to so construct and arrange them as to avoid entirely the use of fire-escapes and in many cases it is a question whether properly constructed escapes do not constitute the best, as well as the cheapest, form of protection, inasmuch as they enable the occupants of the building to be reached and aided

from the outside, when the inner ways of egress are obstructed by flame and smoke, and they can frequently be so located as to be more readily accessible than the regular stairways.

Hotels and lodging houses are, perhaps, the most difficult of all buildings to provide with sufficient ways of escape. In tenement-houses, the rooms of each tenement are generally connected, and it is possible to arrange the stairs so as to give two separate ways of escape, which are not likely to both be obstructed at the same time, or a single fire-escape may be made to protect several families. In a hotel or lodging-house, each room is a tenement by itself, and it is frequently almost impossible to give all the occupants an equal chance of safety.

In the larger houses, the provisions of the law requiring watchmen, lighted halls, fire-alarms, and notices in the rooms, add greatly to the safety of the guests or lodgers, and in such houses, if there are reasonable ways of egress and escape provided, and the watchman does his duty, there is comparatively little danger. In the smaller houses the reliance must be mainly on the fire-escape for protection.

Portable fire-escapes, such as ropes or rope ladders, in all rooms not easily accessible to the stairways or outside escapes, might, many times, prove valuable auxiliaries.

I have been able to find but little information upon what may be considered a good outside fire-escape, either in books or in the laws of the various States. The law in this State formerly required that fire-escapes should be properly constructed, and have railed landings at each story. Under this law, most of the buildings were at first provided with vertical ladders. These have been generally discarded in the later escapes, and steps or stairs substituted to connect the landings. At first these steps were made very narrow, only sixteen or eighteen inches wide, and so steep as to make it difficult for any man to safely descend on them, even in his cooler moments, much less frightened women and children.

Gradually, and mainly through the efforts of the State Inspectors, under Chief Wade, fire-escapes have been very much improved, and the specifications approved by the Chief under the new law call for a device which, if properly put up and kept clear of obstructions, furnish a good and reliable means of escape from fire for the number of persons it is designed to accommodate. Under this specification the stairs are to be not less than twenty-two inches wide, and the inclination never greater than forty-eight degrees. The balconies are to be forty-four inches wide, and the floors to be of open iron-work so as to avoid lodgment of ice and snow.

The treads are seven inches wide, and constructed of iron slats set edgewise. The stringers are four inches by three-eighths iron, and bracketed to receive the treads. The treads and brackets for ordinary inclinations may all be alike, and can be made by the hundred, thus costing little, if any more, than the old way, while the escape is immensely improved in the very qualities in which the old one was deficient.

Having a good fire-escape, the next thing in importance is to put it where it will do the most good. In hotels it is usual to put a fire-escape at the end of a corridor, opposite the inside stairway. It is a good plan in such places to connect the escape with one or more rooms on each side of the corridor, as it may be possible to make a rush through the smoke and reach one of these rooms more quickly than the corridor window, or the occupants of such rooms may be able to aid any one who is overcome or bewildered in the corridor. It is oftentimes impracticable to connect all the rooms directly with the escapes, and in the event of the stairways and passage-ways becoming blocked by smoke, the reliance for safety must be on outside assistance, or on some means of escape kept in the rooms.

In tenement-houses, the escape should connect with the sleeping room windows, wherever practicable to do so. In workshops and smaller factories, the escapes should be located at the end of the room opposite the main stairway, and in the less dangerous buildings used for manufacturing purposes, such as shoe factories, one such escape is frequently sufficient for the purpose.

In cotton mills and other factories of a more combustible nature, the means of egress required will vary somewhat in proportion to the nature of the processes carried on in the different rooms.

I have never been able to learn of any loss of life occurring from a fire originating in a cotton weave room, while in a mule room too much care can hardly be taken in providing easy accessible ways of escape. Usually the ordinary windows will afford a sufficient way of access to the escape, but where a considerable number of women and children are employed, the access to the balconies should be by doors or windows opening outwardly and extending down to the floor.

Under the provisions of a recent law, every fire department is required to be provided with appliances for the rescue of the occupants of burning buildings.

Such means have been in use in other countries, notably in France, for many years, and are said to have proved of great service in the saving of life.

With all the provisions that can be made the public should remember that no adequate provision can be made against panic, and that cool heads are necessary to render the best means of escape from fire of any avail, and we, as inspectors, must keep in mind the fact that eternal vigilance is the giver of safety as well as of liberty.

On motion, Convention adjourned to meet Friday morning at 9 A.M.

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FRIDAY, *August 10, 1888.*

The Convention met at the appointed hour, President Wade in the chair.

On motion, Mr. Lee, of Poughkeepsie, N. Y., was allowed the privilege of the floor to explain the workings of his portable fire-escape.

Mr. Lee then took the floor and spoke at length on the completeness and simplicity of his escape, explaining the manner of descent in case of conflagration.

Mr. Franey, of New York, asking for information in regard to the best means of protection for hoistways and hand elevator openings, the discussion was participated in by Messrs White and Chadwick, of Massachusetts, Hall, Fell and White, of New Jersey, and Dorn, of Ohio.

The latter said that it was a question of great importance, and should be studied during recess, as it mostly referred to a common rope and hook hoist, where it was a very difficult matter to apply any automatic device.

Mr. Dorn then took up the subject of the dangers of buzz, swing and band-saws, also frizzers or shapers and wood-working machinery in general. He discussed those questions at great length, and thereby showed that by the outlay of a small sum of money all such dangers could be prevented. The use of buzz-saws in planing mills, furniture factories and other establishments, are, in fact, the most dangerous tool in use, and although persons operating them know their danger, in the course of time they

will become careless, therefore a protection is absolutely necessary, and this can be done at a very small expense, and to the advantage of both operative and owner by putting a guard over the buzz-saw. The guard will not, in the least, interfere with the work of the sawyer, but, on the contrary, will enable him to turn out more work in less time, while protecting his life and limbs.

Mr. Dorn here exhibited a guard manufactured by the Indianapolis Saw-guard Co., of Indianapolis, Ind. He spoke of it in the highest terms, saying that it was the best, simplest and cheapest guard in the market, so far as he knew, and was in use in most factories in Ohio, and that many lives had been saved since the introduction of this guard to the manufacturers of his State.

Band-saws, or endless saws, as they are called by some, are very seldom properly protected. They should be guarded above the table, a little higher than the thickness of the wood the operative is sawing, then an angle-iron, about twelve inches in length, should be placed near the top pulley in such a manner that in case of a break, which frequently occurs, the operative would not be in danger of having his head and hands injured. Band-saws should also be protected at the bottom part of the saw, which should be properly cased in, to prevent the catching of the operative's legs or feet in case of a break.

Swing-saws should always be provided with stationary guards over them, reaching as far as possible over the saw. But what is most needed is a protection, either on the table or overhead, the latter is better, so that in the case of a breakage of the rope the saw could not swing out further than the table. Many accidents had occurred in his State before the inspection laws were in existence.

Frizzers or shapers are tools which are very difficult to protect by an outside hood, as the operative cannot see his work well. The best way is to bolt a board on the table just near enough to the work to allow the molding to be made. This board will, in case a hard or soft spot is met, prevent the wood from being



drawn in by the cutter, and thereby save the operative from being injured. The cutters which are ground into a sharp angle are not as useful as those which have about a sixteenth of an inch sharp angle, and the rest of the cutter rounded off. The latter will do smoother work and also prevent the wood from being drawn in suddenly by the cutter when passing over a hard spot. The best manner of guarding other wood-working machinery was also explained.

Mr. Con, of Massachusetts, a practical sawyer, agreed with the system of protection as explained by Mr. Dorn.

Mr. Coe, of New York, spoke at length of the dangers of stamping machines, and advised the inspectors to study this question, and endeavor to improve that class of machinery, and report at the next annual convention.

Mr. Fell, of New Jersey, spoke briefly on the same subject.

Mr. McDonald, of Ohio, explained the danger of hot rollers used in laundrying establishments, also sand-paper roller machines used in wood-working establishments. He explained very plainly how those machines could be protected by placing a strip of wood or iron in front of the rollers, so arranged that when they are moved further apart the strip will move with them, thereby never allowing space enough to admit of the rollers catching the operative's hands.

President Wade here introduced Hon. Carroll D. Wright, Commissioner of National and Massachusetts Bureau of Labor Statistics, who briefly discussed the factory laws of the country.

I am deeply interested, he said, in the subject of protecting operatives from accident. Manufacturers are learning that they run to greater advantage in every way when observing stringent factory laws. He spoke of the necessity of overcoming the human tendency of violating corporate rules, and said the best results were brought about under stringent legislation. What benefits the operator is alike beneficial to the operative and the whole community. He then referred to the difference, in the way of cleanliness, he had observed in the factories of Europe,

and said where they were worked under satisfactory laws the best results were obtained. He maintained that the labor of the inspector was one of great importance, for the matter of sanitation was one of the most potent factors in maintaining a perfect physical condition. With healthy homes, factories, and school-houses, we may begin to expect higher social conditions. You, as factory inspectors, must be classed with the educators of the land, and I hope in time every State will see the necessity of adopting the same laws under which you gentlemen present are working.

On motion, Convention adjourned to meet at 1 o'clock P. M.

AFTERNOON SESSION.

Convention was called to order at 1 P. M., President Wade in the chair.

Mr. Fell, of New Jersey, raised the question as to where the next annual convention would be held, and with a few very appropriate remarks, extended an invitation, on behalf of New Jersey, to the members to meet at the capital of that State, in the Hall of the House of Representatives in 1889.

On motion of Mr. Dyson, of Massachusetts, the invitation was accepted, and a vote of thanks returned to Mr. Fell.

Mr. G. P. Hall, of New Jersey, from committee appointed at the last convention to investigate as to the possibility of changing the patent laws so as to require safety guards and other protective devices used on machinery for manufacturing purposes, to be patented, made the following report:

Your Committee, consisting of Mr. H. C. Traphagen, of Ohio, (whose term of office as inspector has since expired), G. P. Hall of New Jersey, and S. C. Hunt, of Massachusetts, opened communication with their respective representatives in Congress, and also consulted with persons acquainted with the patent laws, and from the information elicited, the conclusion arrived at was that the changes desired could not be secured because of constitutional objections. Nothing more definite could be learned without a visit of the Committee to

Washington, and not being clothed with the authority, we did not deem it advisable to take that course.

Report filed.

The committee to prepare resolutions as the sense of the Convention on compulsory education, prohibiting children under the age of fourteen years from working in workshops or factories, defective buildings, machinery, etc., submitted the following, which was adopted:

*Resolved*, That the Factory Inspectors of the United States, in convention assembled, knowing from experience and observation the evils existing in factory life, and the attendant ignorance prevailing among the factory operatives through lack of effective educational laws, call the attention of legislative bodies and the intelligent voters of the nation to this subject. Recognizing the fact that education is necessary to good citizenship, we advise the enactment of stringent compulsory education laws in every State, and the creation of special officers for their proper enforcement. We insist that all children under *fourteen* years of age should be prohibited from laboring in mercantile and manufacturing establishments. It is against good morals that the sexes should be compelled to use the same or adjoining toilet-closets, and against the laws of health that crowded, ill-ventilated and filthy factories and tenement-houses should be permitted to exist, and the Legislatures of the different States ought to immediately pass laws abolishing these evils. The defective construction of machinery, buildings and elevators throughout the land cause the loss of lives and limbs of hundreds of people annually, and therefore it becomes the duty of the States to place upon their statute books such enactments as will be conducive to the safety of both workers and tenants; and

*Resolved*, That where factory inspectors now exist, their number should be increased to enable them to properly perform their duties, and where they do not exist, such departments should be created; and

*Resolved*, That in the framing of the laws advised in the foregoing, we cordially recommend a study of the factory legislation of the State of Massachusetts.

The following resolution, by Mr. G. P. Hall, of New Jersey, was read and unanimously adopted :

*Resolved*, That this Convention recommend the fire-escape invented by Chief Dorn, of Ohio, as embodying the best and most practical idea yet devised for factories, public buildings and tenement-houses.

Mr. Hall, of New Jersey, moved that the Convention go into election of officers for ensuing term, and that the present incumbents be re-elected by acclamation ; which was agreed to.

Mr. Wade, of Massachusetts, President ; Mr. Fell, of New Jersey, First Vice President ; Mr. Dorn, of Ohio, Secretary-Treasurer, were then elected by acclamation.

In accordance with the report of Committee on Rules and Regulations, the following additional officers were nominated :

Mr. Franey, of New York, for Second Vice-President, and Mr. Campbell, of Maine, for Assistant Secretary.

On motion, the above-named gentlemen were elected to their respective positions by acclamation.

Mr. Coe, of New York, offered the following preamble and resolutions :

WHEREAS, We, the representative body of Factory Inspectors of North America, are made aware of the fact that the term of office of Hon. Henry Dorn, Chief Inspector of Ohio, will expire in April, 1889 ; and,

WHEREAS, We recognize in Mr. Dorn a man who has shown exceptional qualifications for the important position of Chief Inspector, his long experience as a skilled mechanical engineer and accomplished draughtsman, peculiarly fitting him for the place he has filled so acceptably to all the people of his State ever since the creation of the office ; therefore,

*Resolved*, That we earnestly express the hope that His Excellency, J. B. Foraker, Governor of Ohio, will re-appoint Chief Dorn at the expiration of his present term of office, as he has proven himself to be the right man in the right place.

*Resolved*, That a copy of these resolutions, with the signatures of the members of this Convention attached, be forwarded to Governor J. B. Foraker, of Ohio.

On motion, the resolutions were unanimously adopted, and Assistant Secretary Coon, of Massachusetts, instructed to put them in proper shape for signatures, and forward the same to the Governor of Ohio.

Messrs. Wade, of Massachusetts, Fell, of New Jersey, and White, of Massachusetts, each complimented Secretary Dorn in the highest terms on his ability as an inspector, being a practical draughtsman, engineer and machinist of long experience, so well adapting him for the head of the department which he now occupies; for his untiring energy in bringing about the organization of this Association, and for the able and acceptable manner in which he had performed the duties as its Secretary.

Mr. Dorn, of Ohio, offered the following resolutions, which were unanimously adopted:

*Resolved*, That the thanks of this Association are due and are hereby tendered to His Honor, Mayor O'Brien, of Boston, Lieutenant-Governor Brackett, Mayor Palmer, of Lowell, Superintendents of Lawrence Mill and Lowell Carpet Mill, Board of Trade Fall River, manufacturers of Lowell, Superintendent of Deer Island, Hon. Rufus R. Wade, Chief Inspector of Factories and his deputies, Hon. Carroll D. Wright, Commissioner of National Bureau of Labor Statistics, and the Boston Fire Department, for the many courtesies shown the delegates while in their midst; and also that our thanks be extended to the Common Council of the city of Boston for the free use of the hall in which our sessions have been held.

*Resolved*, That the thanks of this Convention be extended to the press of the city of Boston for the able manner in which they have reported the proceedings, thereby placing our deliberations in a proper light before their readers.

President Wade extended an invitation to the delegates to call at his office in Commercial Block at any time during their stay in the city.

No further business appearing before the Convention,

On motion of Mr. Campbell, of Maine, the Association adjourned *sine die*.

Attest:

HENRY DORN,

*Secretary-Treasurer.*

# STATE INSPECTION LAWS.

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The following are the laws of the different States providing for the inspection of workshops and factories, relating to the employment of minors, education, accidents, etc.:

## MASSACHUSETTS.

### EMPLOYMENT OF LABOR.

SECTION 1. Any person or corporation engaged in manufacturing, which requires from persons in his or its employ, under penalty of forfeiture of a part of the wages earned by them, a notice of intention to leave such employ, shall be liable to the payment of a like forfeiture if he or it discharges without similar notice a person in such employ, except for incapacity or misconduct, unless in case of a general suspension of labor in his or its shop or factory.

SEC. 2. Whoever, by intimidation or force, prevents, or seeks to prevent, a person from entering into or continuing in the employment of a person or corporation shall be punished by fine of not more than one hundred dollars.

SEC. 3. No person or corporation shall, by a special contract with persons in his or its employ, exempt himself or itself from any liability which he or it might otherwise be under to such persons for injuries suffered by them in their employment, and which result from the employer's own negligence, or from the negligence of other persons in his or its employ.

SEC. 4. No minor under eighteen years of age and no woman shall be employed in laboring in any manufacturing or mechanical establishment more than ten hours in any one day, except as hereinafter provided in this section, or when a different apportionment of the hours of labor is made for the sole purpose of making a shorter day's work for one day of the week; and in no case shall the hours of labor exceed sixty in a week. Every employer shall post in a conspicuous place in every room where such persons are employed a printed notice stating the number of hours' work required of them on each day of the week, the hours of commencing and stopping such work, and the hours when the time or times allowed for dinner or for other meals begins and ends, or in the case of establishments exempted from the provisions of chapter two hundred and fifteen of the acts of the year eighteen hundred and eighty-seven, the time, if any, allowed for dinner and for other meals; the printed form of such notice shall be furnished by the chief of the district police, and shall be approved by the attorney-general; and the employment of any such person for a longer time in any day than that so stated shall be deemed a violation of this section, unless it appears that such employment is to make up for time lost on some previous

day of the same week in consequence of the stopping of machinery upon which such person was employed or dependent for employment. But no stopping of machinery for a shorter continuous time than thirty minutes shall authorize such overtime employment, nor shall any such stopping authorize such employment unless or until a written report of the day and hour of its occurrence, with its duration, is sent to the chief of the district police or to the inspector of factories for the district. Any person who makes a false report of such stopping of machinery shall be punished by fine of not less than fifty nor more than one hundred dollars. If any minor under eighteen years of age, or any woman, shall, without the orders, consent or knowledge of the employer, or of any superintendent, overseer, or other agent of the employer, labor in a manufacturing or mechanical establishment during any part of any time allowed for dinner or for other meals in such establishment, according to the notice above mentioned, and if a copy of such notice was posted in a conspicuous place in the room where such labor took place, together with a rule of the establishment forbidding such minor or woman to labor during such time, then neither the employer, nor any superintendent, overseer, or other agent of the employer, shall be held responsible for such employment.

SEC. 5. Whoever, either for himself, or as superintendent, overseer, or other agent of another, employs or has in his employment any person in violation of the provisions of the preceding section, and every parent or guardian who permits any minor to be so employed, shall be punished by a fine of not less than fifty nor more than one hundred dollars for each offense. Said penalty shall extend to corporations. A certificate of the age of a minor, made by him and by his parent or guardian at the time of his employment in any manufacturing establishment, shall be conclusive evidence of his age upon any trial for a violation of the preceding section.

#### EMPLOYMENT OF MINORS IN MERCANTILE ESTABLISHMENTS.

SECTION 1. No minor under eighteen years of age shall be employed in laboring in any mercantile establishment more than sixty hours in any one week.

SEC. 2. Whoever, either for himself, or as superintendent, overseer, or other agent for another, employs or has in his employment any person in violation of the provisions of the preceding section, or who fails to post the notice required in section third, and any parent or guardian who permits any minor to be so employed, shall be punished by a fine of not less than fifty nor more than one hundred dollars for each offense. Said penalty shall extend to corporations. A certificate of age of a minor, made and sworn to by him and by his parent or guardian at the time of his employment in a mercantile establishment, shall be *prima facie* evidence of his age in any trial for a violation of the preceding section.

SEC. 3. Every employer shall post in one or more conspicuous places where such persons are employed a printed notice, stating the number of hours' work required of them, not exceeding ten hours in any one day, on each day of the week; and the employment of any such person for a longer time in any day than that so stated shall be deemed a violation of this act, unless it appears that such employment is to make up for time lost on some previous day of the same week.

PROHIBITING THE EMPLOYMENT OF CHILDREN IN CLEANING DANGEROUS  
MACHINERY.

SECTION 1. No child under the age of fourteen years shall be permitted to clean any part of the machinery in a factory while such part is in motion by the aid of steam, water or other mechanical power, or to clean any part of such machinery that is in dangerous proximity to such moving part.

SEC. 2. Whoever, either for himself or as superintendent, overseer or other agent of another, violates the provisions of the preceding section, shall be punished by a fine of not less than fifty nor more than one hundred dollars for each offense.

PRESERVATION OF THE HEALTH OF FEMALES.

SECTION 1. Every person or corporation employing females in any manufacturing, mechanical, or mercantile establishment in this Commonwealth, shall provide suitable seats for the use of the females so employed, and shall permit the use of such seats by them when they are not necessarily engaged in the active duties for which they are employed.

SEC. 2. A person or corporation violating any of the provisions of this act shall be punished by a fine of not less than ten dollars nor more than thirty dollars for each offense.

EMPLOYMENT OF MINORS WHO CANNOT READ AND WRITE IN THE ENGLISH  
LANGUAGE.

SECTION 2. Every person who regularly employs, or permits to be employed, a minor fourteen years of age, or over, who cannot read and write in the English language, providing such minor has been, since reaching the age of fourteen, for one year continuously a resident of a city or town of this Commonwealth wherein public evening schools are maintained, and is not a regular attendant of a day or evening school, shall, for every such offense, forfeit not less than fifty nor more than one hundred dollars, for the use of the evening schools of such city or town.

SEC. 3. Whenever it appears that the labor of any minor who would be debarred from employment under section two of this act, is necessary for the support of the family to which said minor belongs, or for his own support, the school committee of said city or town may, in the exercise of their discretion, issue a permit authorizing the employment of such minor within such time or times as they may fix, and the provisions of said section two shall not apply to such minor so long as said permit is in force.

SEC. 4. Two weeks next before the opening of each term of the evening schools, the school committee shall, by posters posted in three or more public places of said city or town, give notice of the location of said schools, the date of the commencement of the term, the evenings of the week during which said schools shall be kept, the provisions of section two of this act as to the forfeiture for non-compliance with said section, and such regulations as to attendance as they shall deem proper.



UNIFORM AND PROPER MEAL TIMES FOR CHILDREN, YOUNG PERSONS  
AND WOMEN.

SECTION 1. All children, young persons and women, five or more in number, employed in the same factory, shall be allowed their meal time or meal times at the same time: *provided, however*, that any children, young persons or women who begin work in such factory at a later hour in the morning than the other children, young persons and women employed therein may be allowed their meal time or meal times at a different time, but no such children, young persons or women shall be employed during the regular meal hour in tending the machines or doing the work of any other children, young persons or women in addition to their own.

SEC. 2. No child, young person or woman shall be employed in a factory or workshop in which five or more children, young persons and women are employed, for more than six hours at one time without an interval of at least half an hour for a meal: *provided, however*, that a child, young person or woman may be so employed for not more than six and one half hours at one time if such employment ends at an hour not later than one o'clock in the afternoon, and if such child, young person or woman is then dismissed from the factory or workshop for the remainder of the day; or for not more than seven and one-half hours at one time if such child, young person or woman is allowed sufficient opportunity for eating a lunch during the continuance of such employment, and if such employment ends at an hour not later than two o'clock in the afternoon, and such child, young person or woman is then dismissed from the factory or workshop for the remainder of the day.

SEC. 3. This act shall not apply to iron works, glass works, paper mills, letter-press printing establishments, print works, bleaching works or dyeing works; and the chief of the district police, where it is proved to his satisfaction that in any other class of factories or workshops it is necessary, by reason of the continuous nature of the process, or of special circumstances affecting such class, to exempt such class from the provisions of this act, and that such exemption can be made without injury to the health of the children, young persons and women affected thereby, may, with the approval of the governor of the Commonwealth, issue a certificate granting such exemption, public notice whereof shall be given in the manner directed by said chief, without expense to the Commonwealth.

SEC. 4. The following expressions used in this act shall have the following meanings: The expression "iron works" means any mill, forge or other premises in or on which any process is carried on for converting iron into malleable iron, steel or tin plate, or for otherwise making or converting steel. The expression "glass works" means any premises in which the manufacture of glass is carried on. The expression "paper mills" means any premises in which the manufacture of paper is carried on. The expression "letter-press printing establishments" means any premises in which the process of letter-press printing is carried on. The expression "print works" means any premises in which is carried on the process of printing figures, patterns or designs upon any cotton, linen, woolen, worsted or silken yarn or cloth, or upon any woven or felted fabric not being paper. The expression "bleaching works" means any premises in which the process of bleaching any yarn or cloth of any material is carried on. The

expression "dyeing works" means any premises in which the process of dyeing any yarn or cloth of any material is carried on.

SEC. 5 Whoever, either for himself or as superintendent, overseer or other agent of another, violates any of the provisions of this act shall be punished by a fine of not less than fifty nor more than one hundred dollars: *provided, however*, that if any minor under eighteen years of age, or any woman, shall, without the orders, consent or knowledge of the employer, or of any superintendent, overseer, or other agent of the employer, labor in a factory or workshop during any part of any time allowed for dinner or for other meals in such factory or workshop, according to the notice required by law, and if a copy of such notice was posted in a conspicuous place, in the room, where such labor took place, together with a rule of the establishment forbidding such minor or woman to labor during such time, then neither the employer, nor any superintendent, overseer, or other agent of the employer, shall be held responsible for such labor.

#### INSPECTION OF BUILDINGS.

SECTION 13. The belting, shafting, gearing, and drums of all factories, when so placed as to be in the opinion of the inspectors mentioned in section nine of chapter one hundred and three, dangerous to persons employed therein while engaged in their ordinary duties, shall be as far as practicable securely guarded. No machinery other than steam engines in a factory, shall be cleaned while running, if objected to in writing by one of said inspectors. All factories shall be well ventilated and kept clean.

SEC. 14. The openings of all hoistways, hatchways, elevators, and well-holes upon every floor of a factory or mercantile or public building shall be protected by good and sufficient trap-doors, or self-closing hatches and safety-catches, or such other safeguards as said inspectors direct; and all due diligence shall be used to keep such trap-doors closed at all times, except when in actual use by the occupant of the building having the use and control of the same. All elevator cabs or cars, whether used for freight or passengers, shall be provided with some suitable mechanical device to be approved by the said inspectors, whereby the cab or car will be securely held in the event of accident to the shipper-rope or hoisting machinery, or from any similar cause.

SEC. 21. No explosive or inflammable compound shall be used in any factory in such place or manner as to obstruct or render hazardous the egress of operatives in case of fire.

SEC. 22. Any person or corporation, being the owner, lessee, or occupant of a manufacturing establishment, factory, or workshop, or owning or controlling the use of any building or room mentioned in section twenty, shall, for the violation of any provision of sections thirteen to twenty one inclusive, be punished by a fine of not less than fifty nor more than five hundred dollars, and shall also be liable for all damages suffered by any employee by reason of such violation; but no criminal prosecution shall be made for such violation until four weeks after notice in writing by an inspector of factories and public buildings, of any changes necessary to be made to comply with the provisions of said sections, has been sent by mail or delivered to such person or corporation; nor then, if in the meantime such changes have been made in accordance with such notification. Notice to one member of a firm, or to the clerk or treasurer of a corporation, owning, leasing, occupying, or controlling, as aforesaid, shall be deemed a suffi

cient notice under this section to all the members of such firm or to such corporation. Nothing in this section shall be so construed as to prohibit a person injured from bringing an action to recover damages for his injuries.

TO PROVIDE AGAINST THE USE OF UNSAFE ELEVATORS.

If any elevator, whether used for freight or passengers, shall, in the judgment of the inspector of factories and public buildings of the district in which such elevator is used, or, in the city of Boston, of the inspector of buildings of said city, be unsafe or dangerous to use, or has not been constructed in the manner required by law, the said inspector shall immediately placard conspicuously upon the entrance to or door of the cab or car of such elevator a notice of its dangerous condition, and prohibit the use of such elevator until made safe to the satisfaction of said inspector. Any person removing such notice or operating such elevator while such notice is placarded as aforesaid, without authority from said inspector, shall be punished by a fine of not less than ten nor more than fifty dollars for each offense.

TO PROHIBIT THE LOCKING OF DOORS DURING THE HOURS OF LABOR.

SECTION 1. No outside or inside doors of any building, wherein operatives are employed, shall be so locked, bolted, or otherwise fastened, during the hours of labor, as to prevent free egress.

SEC. 2. Any person, firm or corporation being the owner, lessee or occupant of any such building who shall, after receiving five days' notice in writing from one of the inspectors of factories and public buildings, neglect or refuse to comply with the provisions of the preceding section, shall forfeit to the use of the Commonwealth not less than ten nor more than fifty dollars.

SEC. 3. The inspectors of factories and public buildings shall enforce the provisions of this act.

TO PROVIDE MEANS OF COMMUNICATION BETWEEN ROOMS WHERE MACHINERY IS PROPELLED BY STEAM AND ROOM WHERE ENGINEER IS STATIONED.

SECTION 1. In every manufacturing establishment where the machinery used is propelled by steam, communication shall be provided between each room where such machinery is placed and the room where the engineer is stationed, by means of speaking tubes, electric bells or such other means as shall be satisfactory to the inspectors of factories; *provided*, that in the opinion of the inspectors such communication is necessary.

SEC. 2. The inspectors of factories shall enforce the provisions of this act, and any person, firm or corporation being the occupant of any manufacturing establishment or controlling the use of any building or room where machinery propelled by steam is used, violating the provisions of this act shall forfeit to the use of the Commonwealth not less than twenty-five nor more than one hundred dollars; but no prosecution shall be made for such violation until four weeks after notice in writing by an inspector has been sent by mail to such person, firm or corporation of any changes necessary to be made to comply with the provisions of this act, nor then if in the meantime such changes have been made in accordance with such notification.

TO REPORT ACCIDENTS IN FACTORIES AND MANUFACTURING  
ESTABLISHMENTS.

SECTION 1. All manufacturers and manufacturing corporations shall forthwith send to the chief of the Massachusetts district police a written notice of any accident to an employe while at work in any factory or manufacturing establishment operated by them whenever the accident results in the death of said employe or causes bodily injury of such a nature as to prevent the person injured from returning to his work within four days after the occurrence of the accident.

SEC. 2. Any person or corporation violating any of the provisions of section one of this act shall be punished by a fine not exceeding twenty dollars.

SEC. 3. The chief of the Massachusetts district police shall keep a record of all accidents so reported to him, together with a statement of the name of the person injured the city or town where the accident occurred, and the cause thereof, and shall include an abstract of said record in his annual report.

EMPLOYMENT OF CHILDREN.

SECTION 1. No child under thirteen years of age shall be employed at any time in any factory, workshop or mercantile establishment. No such child shall be employed in any indoor work, performed for wages or other compensation, to whomsoever payable, during the hours when the public schools of the city or town in which he resides are in session, or shall be employed in any manner during such hours unless during the year next preceding such employment he has attended school for at least twenty weeks as required by law.

SEC. 2. No child under fourteen years of age shall be employed in any manner before the hour of six o'clock in the morning or after the hour of seven o'clock in the evening. No such child shall be employed in any factory, workshop or mercantile establishment, except during the vacation of the public schools in the city or town where he resides, unless the person or corporation employing him procures and keeps on file a certificate and employment ticket for such child as prescribed by section four of this act, and no such child shall be employed in any indoor work, performed for wages or other compensation, to whomsoever payable during the hours when the public schools of such city or town are in session, unless as aforesaid, or shall be employed in any manner during such hours unless during the year next preceding such employment he has attended school for at least twenty weeks as required by law; and such employment shall not continue in any case beyond the time when such certificate expires. The chief of the district police, with the approval of the governor, shall have authority to designate any kind or kinds of employment in factories, workshops or mercantile establishments as injurious to the health of children under fourteen years of age employed therein, and after one week's written notice from the said chief to the employer or his superintendent, overseer or agent of such designation no such child shall be employed in any such kind or kinds of employment in any factory, workshop or mercantile establishments.

SEC. 3. No child under sixteen years of age shall be employed in any factory, workshop or mercantile establishment unless the person or corporation employing him procures and keeps on file the certificate required in the case of such child by the following section, and also keeps on file a full and complete list of such children employed therein.

SEC. 4. The certificate of a child under fourteen years of age shall not be signed until he presents to the person authorized to sign the same an employment ticket, as hereinafter prescribed, duly filled out and signed. The certificate and the employment ticket shall be separately printed, and shall be in the following forms respectively, and the blanks therein shall be filled out and signed as indicated by the words in brackets:

EMPLOYMENT TICKET, LAW OF 1888.

When [name of child], height [feet and inches], complexion [fair or dark], hair [color], presents a certificate duly signed, I intend to employ [him or her].

[Signature of intending employer or agent.]

[Town or city and state.]

AGE AND SCHOOLING CERTIFICATE, LAW OF 1888.

This certifies that I am the [father, mother or guardian] of [name of child], and that [he or she] was born at [name of town or city], in the county of [name of county, if known], and state [or country] of [name], on the [day and year of birth], and is now [number of years and months] old.

[Signature of father, mother or guardian.]

[Town or city and date.]

Then personally appeared before me the above named [name of person signing] and made oath that the foregoing certificate by [him or her] signed is true to the best of [his or her] knowledge and belief. I hereby approve the foregoing certificate of [name of child], height [feet and inches], complexion [fair or dark], hair [color], having no sufficient reason to doubt that [he or she] is of the age therein certified.

[Signature of person authorized to sign, with official character or authority.]

[Town or city and date.]

In case the age of the child is under fourteen, the certificate shall continue as follows, after the word "certified":

And I hereby certify that [he or she] can read at sight, and can write legibly, simple sentences in the English language, and that [he or she] has attended the [name] public [or private] day school according to law for [number of weeks, which must be at least twenty] weeks during the year next preceding this date, and that the last twenty weeks of such attendance began [date]. This certificate expires [date, one year later than above date].

[Signature of the person authorized to sign, with official character or authority.]

If attendance has been at a private school, also signature of a teacher of such school, followed by words—certifying to school attendance.

[Town or city and date]

In case a child cannot read and write, as above stated, the following may be substituted for the clause beginning "and I hereby certify" through to and including the word "language"; "and I hereby certify that [he or she] is a regular attendant at the [name] public evening school;" but in such case the certificate shall only continue in force

for as long a time as attendance of such child at such evening school is indorsed weekly during the session of such evening school, not exceeding the length of the public school year minus twenty weeks in place of attendance at day school as now provided by law, with a statement from a teacher thereof certifying that his attendance continues regular. If attendance has been at a half-time school, forty weeks of such attendance must be certified to instead of twenty. The foregoing certificate must be filled out in duplicate, and one copy thereof shall be kept on file by the school committee. Any explanatory matter may be printed with such certificate in the discretion of the school committee or superintendent of schools.

SEC. 5. In cities and towns having a superintendent of schools said certificate shall be signed only by such superintendent, or by some person authorized by him in writing; in other cities and towns it shall be signed by some member or members of the school committee authorized by vote thereof: *provided, however*, that no member of a school committee or other person authorized as aforesaid, shall have authority to sign such certificate for any child then in, or about to enter, his own employment, or the employment of a firm of which he is a member, or of a corporation of which he is an officer or employe. The person signing the certificate shall have authority to administer the oath provided for therein, but no fee shall be charged therefor; such oath may also be administered by any justice of the peace.

SEC. 6. The certificate as to the birthplace and age of a child shall be signed by his father if living and a resident of the same city or town; if not, by his mother; or if his mother is not living, or if living is not a resident of the same city or town, by his guardian; if a child has no father, mother or guardian living in the same city or town, his own signature to the certificate may be accepted by the person authorized to approve the same.

SEC. 7. No child who has been continuously a resident of a city or town since reaching the age of thirteen years shall be entitled to receive a certificate that he has reached the age of fourteen unless or until he has attended school according to law in such city or town for at least twenty weeks since reaching the age of thirteen, unless exempted by law from such attendance. Before signing the approval of the certificate of age of a child, the person authorized to sign the same shall refer to the last school census taken under the provisions of section three of chapter forty-six of the Public Statutes, and if the name of such child is found thereon, and there is a material difference between his age as given therein and as given by his parent or guardian in the certificate, allowing for lapse of time, or if such child plainly appears to be of materially less age than that so given, then such certificate shall not be signed until a copy of the certificate of birth or of baptism of such child, or a copy of the register of its birth with a town or city clerk, has been produced, or other satisfactory evidence furnished that such child is of the age stated in the certificate.

SEC. 8. The truant officers may, when so authorized and required by vote of the school committee, visit the factories, workshops and mercantile establishments in their several cities and towns, and ascertain whether any children under the age of fourteen are employed therein contrary to the provisions of this act, and they shall report any cases of such illegal employment to the school committee and to the chief of the district police or the inspector of factories for the district. The inspectors of factories, and the truant officers when authorized as aforesaid, may demand the names of all the children under sixteen

years of age employed in such factories, workshops and mercantile establishments, and may require that the certificates and lists of such children provided for in this act shall be produced for their inspection. Such truant officers shall inquire into the employment, otherwise than in such factories, workshops and mercantile establishments, of children under the age of fourteen years, during the hours when the public schools are in session, and may require that the aforesaid certificates of all children under sixteen shall be produced for their inspection; and any such officer, or any inspector of factories, may bring a prosecution against a person or corporation employing any such child otherwise than as aforesaid, during the hours when the public schools are in session, contrary to the provisions of this act, if such employment still continues one week after written notice from such officer or inspector that such prosecution will be brought or if more than one such written notice, whether relating to the same child or to any other child, has been given to such employer by a truant officer or inspector of factories at any time within one year.

SEC. 9. Every parent or guardian of a child under fourteen years of age who permits any employment of such child contrary to the provisions of this act, and every owner, superintendent or overseer of any factory, workshop or mercantile establishment who employs or permits to be employed therein any child contrary to the provisions of this act, and any other person who employs any child contrary to the provisions of this act, shall for every such offense forfeit not less than twenty nor more than fifty dollars for the use of the public schools of the city or town. Every parent, guardian, or person authorized to sign the certificate prescribed by section four of this act, who certifies to any materially false statement therein, shall be punished by a fine not exceeding fifty dollars, or by imprisonment not exceeding thirty days, or by both such fine and imprisonment. A failure to produce to a truant officer or inspector of factories the certificate required by the provisions of this act shall be *prima facie* evidence of the illegal employment of the child whose certificate is not produced.

SEC. 10. The expressions "factory" and "workshop" used in this act shall have the meanings defined for them respectively by chapter one hundred and three of the acts of the year one thousand eight hundred and eighty-seven.

SEC. 11. Within one month of the passage of this act the chief of the district police shall cause a printed copy thereof to be transmitted to the school committee of every city and town in the Commonwealth.

SEC. 12. Sections one to six, inclusive, of chapter forty eight of the Public Statutes, chapter two hundred and twenty-four of the acts of the year eighteen hundred and eighty-three, chapter two hundred and twenty two of the acts of the year eighteen hundred and eighty-five, and section one of chapter four hundred and thirty-three of the acts of the year eighteen hundred and eighty-seven are hereby repealed.

#### WEEKLY PAYMENT OF WAGES BY CORPORATIONS.

SECTION 1. Every manufacturing, mining or quarrying, mercantile, railroad, street railway, telegraph and telephone corporation, every incorporated express company and water company shall pay weekly each and every employe engaged in its business the wages earned by such employe to within six days of the date of said payment; and every incorporated city shall so pay every employe engaged in its

business, unless such employe shall request in writing to be paid in some different manner; and every municipal corporation not a city, and every incorporated county shall so pay every employe engaged in its business if so required by him: *provide*!, *however*, that if at any time of payment any employe shall be absent from his regular place of labor he shall be entitled to said payment at any time thereafter upon demand. The provisions of this section shall not apply to any employe of a co-operative corporation or association who is a stockholder therein, unless such employe shall request such corporation to pay him weekly: and *provided, also*, that the railroad commissioners, after a hearing, may exempt any railroad corporation from paying weekly any of its employes who, in the opinion of the commissioners, prefer less frequent payments, and when in their opinion the interests of the public and such employes will not be injured thereby.

SEC. 2. Any corporation violating any of the provisions of this act shall be punished by a fine not exceeding fifty and not less than ten dollars on each complaint under which it is convicted: *provided*, complaint for such violation is made within thirty days from the date thereof. The chief of the district police, or any state inspector of factories and public buildings, may bring a complaint against any corporation which neglects to comply with the provisions of this act for a period of two weeks after having been notified in writing by such chief or inspector that such complaint will be brought. On the trial of such complaint such corporation shall not be allowed to set up any defense for a failure to pay weekly any employe engaged in its business the wages earned by such employe to within six days of the date of said payment, other than the attachment of such wages by the trustee process, or a valid assignment thereof, or a valid set-off against the same, or the absence of such employe from his regular place of labor at the time of payment, or an actual tender of such employe at the time of payment of the wages so earned by him. No assignment of wages payable weekly under the provisions of this act shall be valid if made to the corporation from whom such wages are to become due, or to any person on behalf of such corporation, or if made or procured to be made to any person for the purpose of relieving such corporation from the obligation to pay weekly under the provisions of this act.

SEC. 3. When a corporation against which a complaint is made under this act fails to appear after being duly served with process, its default shall be recorded the allegations in the complaint taken to be true, and judgment shall be rendered accordingly.

SEC. 4. When judgment is rendered upon any such complaint against a corporation, the court may issue a warrant of distress to compel the payment of the penalty prescribed by law, together with the costs and interest.

#### SANITARY APPLIANCES AND VENTILATION.

SECTION 1. Every factory in which five or more persons are employed, and every factory, workshop mercantile or other establishment or office in which two or more children, young persons or women are employed, shall be kept in a cleanly state and free from effluvia arising from any drain, privy or other nuisance, and shall be provided, within reasonable access, with a sufficient number of proper water-closets. earth-closets or privies for the reasonable use of the persons employed therein; and wherever two or more male persons and two or more



female persons are employed as aforesaid together, a sufficient number of separate and distinct water-closets, earth closets or privies shall be provided for the use of each sex and plainly so designated, and no person shall be allowed to use any such closet or privy assigned to persons of the other sex.

SEC. 2. It shall be the duty of every owner, lessee or occupant of any premises so used as to come within the provisions of this act to carry out the same and make the changes necessary therefor. In case such changes are made upon the order of an inspector of factories by the occupant or lessee of the premises, he may at any time within thirty days of the completion thereof bring an action before any trial justice, police, municipal or district court against any other person having an interest in such premises, and may recover such proportion of the expense of making such changes as the court adjudges should justly and equitably be borne by such defendant.

SEC. 3. When it appears to an inspector of factories that any act, neglect or default in relation to any drain, water closet, earth-closet, privy, ash-pit, water supply, nuisance or other matter in a factory or in a workshop, included under section one of this act, is punishable or remediable under chapter eighty of the Public Statutes, or under any law of the Commonwealth relating to the preservation of the public health, but not under this act, such inspector shall give notice in writing of such act, neglect or default to the board of health of the city or town within which such factory or workshop is situate, and it shall thereupon be the duty of such board of health to make inquiry into the subject of the notice, and to take such action thereon in the way of enforcing any provision of law within its authority as the facts may call for.

SEC. 4. Any person violating any provision of sections one and two of this act shall be punished by a fine not exceeding one hundred dollars; but no criminal prosecution shall be made for such violation until four weeks after notice in writing by an inspector of factories of the changes necessary to be made to comply with the provisions of said sections has been sent by mail or delivered to such person, nor then if in the meantime such changes have been made in accordance with such notification. A notice shall be deemed a sufficient notice under this section to all the members of a firm or to a corporation when given to one member of such firm, or to the clerk, cashier, secretary, agent or any other officer having charge of the business of such corporation, or to its attorney; and in the case of a foreign corporation, notice to the officer having the charge of such factory or workshop shall be sufficient; and such officer shall be personally liable for the amount of any fine in case a judgment against the corporation is returned unsatisfied.

SEC. 5. The following expressions used in this act shall have the following meaning:—

The expression "person" means any individual, corporation, partnership, company or association

The expression "child" means a person under the age of fourteen years.

The expression "young person" means a person of the age of fourteen years and under the age of eighteen years.

The expression "woman" means a woman of eighteen years of age and upwards.

The expression "factory" means any premises where steam, water or other mechanical power is used in aid of any manufacturing process there carried on.

The expression "workshop" means any premises, room or place, not being a factory as above defined, wherein any manual labor is exercised by way of trade, or for purposes of gain in, or incidental to, any process of making, altering, repairing, ornamenting finishing or adapting for sale any article or part of an article, and to which or over which premises, room or place the employer of the persons working therein has the right of access or control: *provided, however*, that the exercise of such manual labor in a private house or private room by the family dwelling therein, or by any of them, or in case a majority of the persons therein employed are members of such family, shall not of itself constitute such house or room a workshop within this definition.

The aforesaid expressions shall have the meanings above defined for them respectively in all laws of this Commonwealth relating to the employment of labor, whether heretofore or hereafter enacted, unless a different meaning is plainly required by the context.

#### PROPER VENTILATION OF FACTORIES AND WORKSHOPS.

SECTION 1. Every factory in which five or more persons are employed, and every workshop in which children, young persons or women, five or more in number, are employed, shall be so ventilated while work is carried on therein that the air shall not become so exhausted as to be injurious to the health of the persons employed therein, and shall also be so ventilated as to render harmless, so far as is practicable, all the gasses, vapors, dust or other impurities generated in the course of the manufacturing process or handicraft carried on therein that may be injurious to health.

SEC. 2. If in a factory or workshop included in section one of this act any process is carried on by which dust is generated and inhaled to an injurious extent by the persons employed therein, and it appears to an inspector of factories that such inhalation could be to a great extent prevented by the use of a fan or other mechanical means, and that the same could be provided without excessive expense, such inspector may direct a fan or other mechanical means of a proper construction to be provided within a reasonable time, and such fan or other mechanical means shall be so provided, maintained and used.

SEC. 3. Any person employing labor in a factory or workshop and violating any provision of this act shall be punished by fine not exceeding one hundred dollars; but no criminal prosecution shall be made for any such violation unless such employer shall have neglected for four weeks to make such changes in his factory or workshop as shall have been ordered by an inspector of factories by a notice in writing delivered to or received by such employer.

#### SANITARY PROVISIONS AND PROPER VENTILATION IN PUBLIC BUILDINGS AND SCHOOL-HOUSES.

SECTION 1. Every public building and every school-house shall be kept in a cleanly state and free from effluvia arising from any drain, privy, or other nuisance, and shall be provided with a sufficient number of proper water-closets, earth-closets or privies for the reasonable use of the persons admitted to such public building or of the pupils attending such school-house.

SEC. 2. Every public building and every school-house shall be ventilated in such a proper manner that the air shall not become so exhausted as to be injurious to the health of the persons present therein.

The provisions of this section and the preceding section shall be enforced by the inspection department of the district police force.

SEC. 3. Whenever it shall appear to an inspector of factories and public buildings that further or different sanitary provisions or means of ventilation are required in any public building or school-house in order to conform to the requirements of this act and that the same can be provided without incurring unreasonable expense, such inspector may issue a written order to the proper person or authority directing such sanitary provisions or means of ventilation to be provided, and they shall thereupon be provided in accordance with such order by the public authority, corporation or person having charge of, owning or leasing such public building or school-house.

SEC. 4. Any school committee, public officer, corporation or person neglecting for four weeks after the receipt of an order from an inspector, as provided in the preceding section, to provide the sanitary provisions or means of ventilation required thereby shall be punished by fine not exceeding one hundred dollars.

SEC. 5. The expression "public building" used in this act means any building or premises used as a place of public entertainment, instruction, resort or assemblage. The expression "school-house" means any building or premises in which public or private instruction is afforded to not less than ten pupils at one time.

#### WAYS OF EGRESS AND MEANS OF ESCAPE FROM FIRE IN CERTAIN BUILDINGS.

SECTION 1. Every building now or hereafter used, in whole or in part, as a public building, public or private institution, school-house, church, theatre, public hall, place of assemblage or place of public resort, and every building in which ten or more persons are employed above the second story in a factory, workshop or mercantile or other establishment, and every hotel, family hotel, apartment-house, boarding house, lodging-house or tenement-house in which ten or more persons lodge or reside above the second story, and every factory, workshop, mercantile or other establishment, the owner, lessee or occupant of which is notified in writing by the inspector hereinafter mentioned that the provisions of this act are deemed by him applicable thereto, shall be provided with proper ways of egress, or other means of escape from fire, sufficient for the use of all persons accommodated, assembling, employed, lodging or residing in such building; and such ways of egress and means of escape shall be kept free from obstruction, in good repair and ready for use. Every room above the second story in any such building in which ten or more persons are employed shall be provided, if the inspector mentioned in the following section shall so direct in writing, with more than one way of egress by stairways on the inside or outside of the building, placed as near as practicable at opposite ends of such room; stairways on the outside of the building shall have suitable railed landings at each story above the first, and shall connect with each story by doors or windows; and such landings, doors and windows shall be kept clear of ice and snow and other obstructions. Women or children shall not be employed in a factory, workshop or mercantile or other establishment, in a room above the second story from which there is only one way of egress, if the inspector mentioned in the following section shall so direct in writing. All doors and windows in any building subject to the provisions of this section shall open outwardly if the inspector mentioned in the following sec-

tion shall so direct in writing. No portable seats shall be allowed in the aisles or passage-ways of such building during any service or entertainment held therein. The proscenium or curtain opening of all theatres shall have a fire-resisting curtain of some incombustible material, and such curtain shall be properly constructed and shall be operated by proper mechanism; the certificate of the inspector mentioned in the following section shall be conclusive evidence of a compliance with such requirements.

SEC. 2. It shall be the duty of such inspectors of factories and public buildings, as may be assigned to such duty by the chief of the district police force, to examine, as soon as may be after the passage of this act, and thereafter from time to time, all buildings within his district subject to the provisions of this act, and it shall be the duty of the inspector of buildings of the city of Boston so to examine all such buildings within said city. In case any such building conforms, in the judgment of such inspector, to the requirements of this act, he shall issue to the owner, lessee or occupant of such building, or of any portion thereof used as above mentioned in section one, a certificate to that effect, specifying the number of persons for whom the ways of egress or means of escape from fire are deemed to be sufficient. Such certificate shall be conclusive evidence, as long as it continues in force, of a compliance on the part of the person to whom it is issued with the provisions of this act. But such certificate shall be of no effect in case a greater number of persons than therein specified are accommodated or employed, or assemble, lodge or reside within such building or portion thereof, or in case such building is used for any purposes materially different from those for which it was used at the time of the granting thereof, or in case the internal arrangements of such building are materially altered, or in case any ways of egress or means of escape from fire existing in such building at the time of such granting are stopped up, rendered unavailable or materially changed; and in no case shall such certificate continue in force for more than five years from its date. Such certificate may be revoked by such inspector at any time upon written notice to the person holding the same, or occupying the premises for which it was granted, and shall be so revoked whenever, in his opinion, any conditions or circumstances have so changed that the existing ways of egress and means of escape are no longer proper and sufficient. A copy of the said certificate shall be kept posted in a conspicuous place upon every floor of such building by the person occupying the premises covered thereby.

SEC. 3. Upon an application being made to an inspector for the granting of a certificate under this act, he shall issue to the person making the same an acknowledgment that such certificate has been applied for, and pending the granting or refusal of such certificate such acknowledgment shall have for a period of ninety days the same effect as such certificate, and such acknowledgment may be renewed by such inspector with the same effect for a further period not exceeding ninety days, and may be further renewed by the chief of the district police, until such time as such certificate shall be granted or refused.

SEC. 4. In case any change is made in any premises for which a certificate has been issued under this act, whether in the use thereof or otherwise, such as terminates the effect of such certificate, as above provided in section two, it shall be the duty of the person making the same to give written notice thereof forthwith to the inspector for the district, or chief of the district police, if such premises are outside of

the city of Boston, or to the inspector of buildings of the city of Boston if within said city.

SEC. 5. In case any building or portion thereof subject to the provisions of this act is found by an inspector to fail to conform thereto, or in case any change is made in such building or portion thereof such as terminates the effect of a certificate formerly granted therefor as aforesaid, it shall be the duty of such inspector to give notice in writing to the owner, lessee or occupant of such building, specifying and describing what additional ways of egress or means of escape from fire are necessary in the opinion of such inspector in order to conform to the provisions of this act and to secure the granting of a certificate as aforesaid. Notice to any agent of such owner, lessee or occupant in charge of the premises shall be sufficient notice under this section to such owner, lessee or occupant.

SEC. 6. In case any building subject to the provisions of this act is owned, leased or occupied, jointly or in severalty, by different persons, any one of such persons shall have the right to apply to any part of the outside of such building, and to sustain from any part of the outside wall thereof, any way of egress or means of escape from fire specified and described by an inspector as above provided, notwithstanding the objection of any other such owner, lessee or occupant; and any such way of egress or means of escape may project over the highway.

SEC. 7. When a license is required by law or municipal ordinance, in order to authorize any premises to be used for any purpose mentioned in section one, no license for such purpose shall be granted until a certificate for such building or portion thereof shall first have been obtained from an inspector as above provided, and no such license hereafter issued shall continue in force any longer than such certificate remains in force.

SEC. 8. No wooden flue or air duct for heating or ventilating purposes shall hereafter be placed in any building subject to the provisions of section one of this act, and no pipe for conveying hot air or steam in such building shall be placed, or shall remain placed, nearer than one inch to any woodwork unless protected to the satisfaction of the said inspector by suitable guards or casings of incombustible material.

SEC. 9. Every story above the second of a building subject to the provisions of section one shall be supplied with means of extinguishing fire, consisting either of pails of water or other portable apparatus, or of hose attached to a suitable water supply and capable of reaching any part of such story; and such means of extinguishing fire shall be kept at all times ready for use and in good condition.

SEC. 10. It shall be the duty of such members of the inspection department of the district police force as may be assigned to such duty by the chief of such force to enforce the provisions of this act outside of the city of Boston, and of the inspector of buildings of the city of Boston to enforce the same within said city, and for such purpose such inspectors shall have the right of access to all parts of any buildings subject to the provisions of this act.

SEC. 11. Cities may, by ordinance, provide that the provisions of this act shall apply to any buildings three or more stories in height within their respective limits.

SEC. 12. It shall be the duty of every owner, lessee or occupant of any building or part thereof, subject to this act, to cause the provisions thereof to be carried out, and any owner, lessee or occupant failing to observe such provisions shall be subject to a fine of not less than fifty nor more than one thousand dollars; but no prosecution therefor shall

be brought until four weeks after written notice from an inspector, as above provided, of the changes necessary to be made in order to conform thereto, nor then if in the meantime such changes have been made in accordance with such notification. Notice to one member of a firm, or to the clerk or treasurer of a corporation, or to the person in charge of the premises, shall be deemed sufficient notice thereunder, and such notice may be given in person or by mail. Any such owner, lessee or occupant shall be liable for all damages caused by his violation of the provisions of this act. Any person using or occupying a building contrary to the provisions of this act may be enjoined from such use or occupation in a proceeding to be had before the superior court of the supreme judicial court at the instance of the inspector, and upon the filing of a petition therefor any judge or justice of the court in which such proceeding is pending may issue a temporary injunction or restraining order, as provided in proceedings in equity.

SEC 13. The Governor of the Commonwealth is hereby authorized to appoint from time to time, as may be necessary, not exceeding ten additional members of the inspection department of the district police force, qualified to perform the duties of the members of such department.

#### ERECTION AND CONSTRUCTION OF CERTAIN BUILDINGS.

SECTION 1. No building designed to be used in whole or in part, as a public building, public or private institution, school house, church, theater, public hall, place of assemblage or place of public resort, and no building more than two stories in height designed to be used above the second story, in whole or in part, as a factory, workshop or mercantile or other establishment and having accommodations for ten or more employes above said story, and no building more than two stories in height designed to be used above the second story, in whole or in part as a hotel, family hotel, apartment house, boarding house, lodging house or tenement-house and having ten or more rooms above said story, shall hereafter be erected, unless in process of erection at the date of the passage of this act, until a copy of the plans of such building has been deposited with the inspector of factories and public buildings for the district in which such building is to be located, if outside of the city of Boston, or with the inspector of buildings of the city of Boston, if within said city, together with a copy of such portion of the specifications of such building as such inspector may require, nor shall any such building be so erected without the provision of sufficient ways of egress and other means of escape from fire, properly located and constructed; the certificate of the inspector above named indorsed, if the building is to be located outside the city of Boston, with the approval of the chief of the district police force, shall be conclusive evidence of a compliance with the provisions of this act, provided that after the granting of such certificate no change is made in the plans or specifications of such ways of egress and means of escape unless a new certificate is obtained therefor. Such inspector may require that proper fire-stops shall be provided in the floors, walls and partitions of such buildings and may make such further requirements, as may be necessary or proper to prevent the spread of fire therein or its communication from any steam boiler or heating apparatus; and no pipe for conveying hot air or steam in such building shall be placed nearer than one inch to any wood work, unless protected to the satisfaction of such inspector by suitable guards or casings of incombustible material, and

no wooden flue or air-duct for heating or ventilating purposes shall be placed in any such building.

SEC. 2. Any person erecting or constructing a building in violation of the provisions of this act shall be punished by fine of not less than fifty nor more than one thousand dollars, and such erection or construction may be enjoined in a proceeding to be had before the superior or supreme judicial court at the instance of the inspector above named, and upon the filing of a petition for such injunction any justice of the court in which such proceeding is pending may issue a temporary injunction or restraining order, as provided in proceedings in equity.

INSPECTION IN CERTAIN CASES OF BUILDINGS AND OTHER STRUCTURES  
ALLEGED TO BE UNSAFE OR DANGEROUS.

SECTION 1. Any member of the inspection department of the district police force, when called upon by the mayor or aldermen of any city, except the city of Boston, or by the selectmen of a town, shall inspect any building or other structure or anything attached to or connected therewith in such city or town which has been represented to be unsafe or dangerous to life or limb.

SEC. 2. If it appears to an inspector upon such inspection that the building or other structure or anything attached to or connected therewith is unsafe or dangerous to life or limb, in case of fire or otherwise, he shall proceed to cause the same to be removed or to render the same safe and secure, in the manner provided by sections four to eleven inclusive of chapter one hundred and four of the public statutes, and may cause proceedings to be instituted under section twelve of said chapter one hundred and four.

SEC. 3. The words "mayor and aldermen" in section five of said chapter one hundred and four shall, for the purposes of this act, be construed to apply to the mayor and aldermen of a city or the selectmen of a town, as the case may be.

SEC. 4. If in any city or town in which such inspection is made there is no city engineer or chief engineer of the fire department, the mayor and aldermen or selectmen, as the case may be, shall designate some other officer or officers or some suitable persons in place of the officers so named to act upon the board of survey provided for in section six of said chapter one hundred and four, and the provisions of said section, and of sections seven, eight, nine, ten and twelve of said chapter one hundred and four shall apply to a board thus constituted.

TO SECURE BETTER PROVISIONS FOR ESCAPE FROM HOTELS AND CERTAIN  
OTHER BUILDINGS IN CASE OF FIRE.

SECTION 1. Every keeper of a hotel, boarding or lodging house containing one hundred or more rooms, and being four or more stories high, shall have therein at least two competent watchmen, each properly assigned, and each on duty between the hours of nine o'clock in the afternoon and six o'clock in the forenoon. And every keeper of a hotel, boarding or lodging house, containing fifty or more, but less than one hundred, rooms, and being three stories high, shall have between said hours at least one competent watchman on duty therein. And in all such hotels or lodging houses as are mentioned in this section, the halls and stairways shall be properly lighted at night, and at the head and foot of each flight of stairs shall be kept during the night a red

light; and one or more proper alarms or gongs, capable of being heard throughout the house, shall always remain easy of access and ready for use in each of said buildings, to give notice to the inmates in case of fire. And every keeper of such hotel, boarding or lodging house shall keep posted in a conspicuous place in every sleeping-room, a notice descriptive of such means of escape.

SEC. 3. The inspector of buildings in the city of Boston, the mayor and aldermen of other cities, and the selectmen of towns, shall prescribe as they deem necessary, except so far as is specifically required in the preceding sections, what additional night-watch shall be kept, and what further provisions for the prevention of fires, and for the better protection of life in case of fire, shall be made by the several keepers of hotels, boarding or lodging houses within their respective limits; and no license shall be granted to any keeper of a hotel embraced in the provisions of this act, until the requirements thereof, so far as applicable, have been complied with.

SEC. 4. Whoever neglects or refuses to provide watchmen as required by this act shall be punished by a fine not exceeding one thousand dollars for each offense, and whoever violates any of the other provisions of this act shall be subject to the same penalty as is prescribed in section twenty-two of chapter one hundred and four of the public statutes.

#### SAFETY APPLIANCES IN HOTELS AND PUBLIC BUILDINGS.

SECTION 1. All hotels, boarding and lodging houses, subject to the provisions of chapter two hundred and fifty-one of the acts of the year eighteen hundred and eighty-three, adopting a system of electric watch-clocks that shall register at the office the movements of a watchman throughout the house, or adopting in the rooms any system of thermostats or fire-alarm bells that shall be approved by the inspector of factories and public buildings, or in the city of Boston by the inspector of buildings, shall be exempt from maintaining more than one watchman in addition to the regular night clerk and porters.

SEC. 2. The provisions of this act, and of said chapter two hundred and fifty-one of the acts of the year eighteen hundred and eighty-three, shall apply to family hotels.

#### AMENDATORY ACT RELATING TO THE DUTIES AND POWERS OF INSPECTORS.

SECTION 1. Section ten of chapter one hundred and three of the public statutes is hereby amended so as to read as follows: Section 10. Such inspectors shall enforce the provisions of sections thirteen to twenty-two, inclusive, of chapter one hundred and four, except as therein specified, and the various provisions of law relating to the employment of women and minors in manufacturing, mechanical or mercantile establishments, and the employment of children, young persons or women in factories or workshops, and the ventilation of factories or workshops, and the securing of proper sanitary provisions in factories or workshops; and for this purpose said inspectors may enter all buildings used for public or manufacturing purposes, or for factories or workshops, examine the methods of protection from accident, the means of escape from fire, the sanitary provisions and the means of ventilation, and may make investigations as to the employment of children, young persons and women.



## NEW JERSEY.

## LAW RELATING TO THE EMPLOYMENT OF CHILDREN.

1. *Be it enacted by the Senate and General Assembly of the State of New Jersey*, That after the fourth day of July, one thousand eight hundred and eighty-three, no boy under the age of twelve years, nor any girl under fourteen years of age, shall be employed in any factory, workshop, mine, or establishment where the manufacture of any goods whatever is carried on.

2. *And be it enacted*, That on and after the first day of July, one thousand eight hundred and eighty four, no child between the ages of twelve and fifteen years shall be employed in any factory, workshop, mine, or establishment where the manufacture of any kind of goods whatever is carried on, unless such child shall have attended, within twelve months immediately preceding such employment, some public day or night school, or some well recognized private school; such attendance to be for five days or evenings every week during a period of at least twelve consecutive weeks, which may be divided into two terms of six consecutive weeks each, so far as the arrangement of school terms will permit, and unless such child or its parents or guardian, shall have presented to the manufacturer, merchant or other employer seeking to employ such child, a certificate giving the name of his parents or guardian, the name and number of schools attended and the number of weeks in attendance, such certificate to be signed by the teacher or teachers of such child; *provided* that in case the age of the child be not known, such teacher shall certify that the age given is the true age, to the best of his or her knowledge and belief; *provided*, that in case of orphan children, where necessity may seem to require, the guardian or others having charge of the same may, upon application to the inspector provided for in this act, receive from him a permit for the employment of such child or children, under such regulations as the said inspector may prescribe.

3. *And be it enacted*, That no child or children under the age of fourteen years shall be employed in any factory, workshop, mill or establishment where the manufacture of any kind of goods is carried on, for a longer period than an average of ten hours in a day, or sixty hours in a week.

4. *And be it enacted*, That every manufacturer, merchant or other employer employing any person contrary to the provisions of this act, or who shall be guilty of any violation hereof, shall be guilty of misdemeanor, and upon conviction be fined for each offense in a sum of not less than fifty nor more than one hundred dollars, and in default of payment of the same shall be imprisoned in the county jail for not less than thirty nor more than ninety days; and that every head of a family, parent or guardian, who knowingly permits the employment of such children shall be likewise subject to a fine of not more than twenty-five nor less than ten dollars for every child so employed, and for each offense, and in default of such payment shall be imprisoned in the county jail for a period of not less than ten days nor more than twenty days; a certificate of the age of the minor, made by him or her, and by his or her parents or guardian at the time of employment, shall be conclusive evidence of the age of such minor upon any trial for the violation of this act; *provided*, that the provisions in this act in relation to the hours

of employment shall not apply to or affect any person engaged in preserving perishable goods in fruit-canning establishments.

5. *And be it enacted* That the governor shall, immediately after the passage of this bill, appoint, with the advice and consent of the senate, some suitable person, who shall be a resident and citizen of this state, as inspector, at a salary of twelve hundred dollars per year, to be paid monthly, whose term of office shall be for three years; the said inspector shall be empowered to visit and inspect, at all reasonable hours and as often as practicable, the factories, workshops, mines and other establishments in the state where the manufacture and sale of any kind of goods is carried on, and to report to the governor of this state, on or before the thirty-first day of October in each year; it shall also be the duty of said inspector to enforce the provisions of this act and prosecute all violations of the same in any recorders' courts of cities, and justices of the peace, or other courts of competent jurisdiction in the state.

6. *And be it enacted*, That all necessary expenses incurred by said inspector in the discharge of his duty shall be paid from the funds of the state upon the presentation of proper vouchers of the same; *provided*, that not more than five hundred dollars shall be expended by him in any one year.

7. *And be it enacted*, That all fines collected under this act shall inure to the benefit of the school fund of the district where the offense has been committed.

#### SUPPLEMENTARY ACT.

That the inspector and his deputies shall have power to demand a certificate of physical fitness from some regular practicing physician in the case of minors who may seem physically unable to work, and shall have power to prohibit the employment of any minor that cannot obtain such a certificate.

That any parent or guardian who, when so required by the inspector, or one of his deputies, shall furnish to such inspector, or deputy, a certificate from the office of registration of births, or in the absence of such certificate, an affidavit or affidavits of the age of such minor; and if any one shall knowingly swear falsely in any such affidavit, the person or persons so swearing shall be guilty of perjury and liable to indictment and punishment accordingly.

That section four of the act to which this is a supplement shall be amended to read as follows:

4. [*And be it enacted*, That every manufacturer, merchant, or other employer, employing any person contrary to the provisions of this act, or who shall be guilty of any violation thereof, shall be liable to a penalty of fifty dollars for each offense, to be recovered in an action of debt in any district court in any city, or before any justice of the peace having due jurisdiction, and that any parent or guardian who knowingly permits the employment of such child or children shall be liable in like action to a penalty of not more than fifty dollars, as the court shall fix; that such action shall be prosecuted in the name of the inspector; the trial shall proceed as other actions of debt, and the first process shall be a summons returnable in not less than five days or more than ten days after issue, and it shall not be necessary to indorse the same as in *qui tam* actions; the finding of the court shall be that the defendant has or has not, as the case may be, incurred the penalty claimed in the demand of the plaintiff, and judgment shall be

given accordingly; in case an execution shall issue and be returned unsatisfied, the court, on application, after notice to the defendant, may award an execution to take the body of the defendant, and in case such a defendant is committed under such an execution he shall not be discharged under the insolvent laws of the state, but shall only be discharged by the court making the order for the body execution, or one of the justices of the supreme court, when such court or justice shall be satisfied that further confinement will not accomplish the payment of the judgment and costs; an affidavit of the age of any minor made by its parent or guardian, at the time of its employment, shall be conclusive evidence of the age of such minor, upon any trial against a manufacturer or employer for the violation of this act, but any parent or guardian that shall knowingly swear falsely in such affidavit shall be guilty of perjury, and the inspector or deputy inspector shall be authorized, in case they shall find any minor employed under any false affidavit given as aforesaid, to order and compel such minor to desist from work; the provisions of this act in relation to the hours of employment shall not apply to or affect any person engaged in preserving perishable goods in fruit-canning establishments.]

#### COMPULSORY EDUCATION LAW.

1. *Be it enacted by the Senate and General Assembly of the State of New Jersey*, That all parents and those who have care of children shall instruct them, or cause them to be instructed, in spelling, reading, writing, English grammar, geography and arithmetic; and every parent, guardian or other person having control and charge of any child or children between the ages of seven and twelve years shall be required to send any such child or children to a public day school for a period of at least twenty weeks in each year, eight weeks, at least, of which attendance shall be consecutive, unless such child or children are excused from such attendance by the board of the school district in which such parents or guardians reside, upon its being shown to their satisfaction that the bodily or mental condition of such child or children has been such as to prevent his, her or their attendance at school, or that such child or children are taught in a private school, or at home, by some qualified person or persons, in such branches as are usually taught in primary schools.

2. *And be it enacted*, That no child under the age of fifteen years shall be employed by any person, company or corporation to labor in any business whatever, unless such child shall have attended, within twelve months immediately preceding such employment, some public day or night school, or some well recognized private school; such attendance to be for five days or evenings every week during a period of at least twelve consecutive weeks, which may be divided into two terms of six consecutive weeks each, so far as the arrangement of school terms will permit, and unless such child, or his or her parents or guardian, shall have complied with the provisions of the act approved March fifth, eighteen hundred and eighty-three, limiting the employment hours of the labor of children.

3. *And be it enacted*, That every parent, guardian or other person having charge or control of any child from twelve to sixteen years of age, who has been temporarily discharged from employment in any business in order to be afforded an opportunity to receive instruction or schooling, shall send such child to some public or private day school for the period for which such child shall have been discharged,

unless such child shall have been excused from such attendance by the inspector of factories and workshops, or by the board of the school district, for reasons as stated in section one hereof.

4. *And be it enacted*, That in case any parent, guardian or other person shall fail to comply with the provisions of sections one and three of this act, such parent, guardian or other person shall be deemed guilty of a misdemeanor, and shall, on conviction, be liable to a fine of not less than ten dollars nor more than twenty-five dollars for the first offense, and of not less than twenty-five dollars for each subsequent offense, or to imprisonment for not less than one month or more than three; the said fines, when paid, to be added to the public school money of said school district in which the offense occurred.

5. *And be it enacted*. That all children between the ages of seven and fifteen years, who are habitual truants from school, or who, while in attendance at any public school are incorrigible, vicious or immoral in conduct, and all children between the said ages who absent themselves habitually from school, and habitually wander about streets and public places during school hours, having no business or lawful occupation, shall be deemed juvenile disorderly persons and subject to the provisions of this act.

6. *And be it enacted*, That in all cities having a duly organized police force, it shall be the duty of the police authority, at the request of the inspectors of factories and workshops, or of the school authority, to detail one or more members of said force to assist in the enforcement of this act; and in districts having no regular police force, subject to this act, it shall be the duty of the board of education, or the school district officers, to designate one or more constables of said city, township or village, whose duty it shall be to assist in the enforcement of this act, as occasion may require, and said board of education shall fix and determine the compensation to be paid such police officer or constable for the performance of his duties under the act; members of any police force or any constable designated to assist in the enforcement of this act, as provided in this section, shall be known as truant officers; *provided*, that in districts where no constable resides, the said board shall have power to appoint some other suitable person as truant officer.

7. *And be it enacted*, That it shall be the duty of any such truant officer or officers detailed to enforce the provisions of this act to examine into all cases of truancy, when requested so to do by the inspectors of factories and workshops, or by a district school board, and to warn such truants, their parents or guardians, in writing, of the final consequences of truancy, if persisted in, and also to notify the parent, guardian or other person having the legal charge and control of any juvenile disorderly person, that the said person is not attending any school, and to require said parent, guardian or other person to cause the said child to attend some recognized school within five days from said notice, and it shall be the duty of said parent, guardian or other person having the legal charge and control of said child to cause the attendance of said child at some recognized school; if said parent, guardian or other person having the legal charge and control of said child shall willfully refuse, fail or neglect to cause said child to attend some recognized school, it shall be the duty of said officer to make our cause to be made a complaint against said parent, guardian or other person having the legal control and charge of such child, in any court of competent jurisdiction in the school district in which the offense occurred, for such refusal or neglect, and upon conviction thereof said parent,

guardian or other person, as the case may be, shall be punished by a fine of not less than ten dollars nor more than twenty-five dollars, or the court may, in its discretion, require the person so convicted to give bond in the penal sum of one hundred dollars, with one or more sureties, to be approved by said court, conditioned that said person so convicted shall cause the child or children under his or her legal charge or control to attend some recognized school within five days thereafter, and to remain at said school during the term prescribed by law; *provided*, that if said parent, guardian or other person in charge of said child, shall prove inability to cause said child to attend said recognized school, then said parent or guardian, or other person, shall be discharged, and said court shall, upon complaint of said truant officer or other person that said child is a juvenile disorderly person, as described in section five of this act, proceed to hear such complaint, and if said court shall determine that said child is a juvenile disorderly person within the meaning of this act, then said court shall thereupon sentence said child to a juvenile reformatory until such child shall arrive at the age of sixteen years, unless sooner discharged by the board of control of said juvenile reformatory; *provided, however*, that such sentence may be suspended, in the discretion of said court, for such time as the child shall regularly attend school and properly deport himself or herself; it is further provided, that if for any cause the parent or guardian, or other person having charge of any juvenile disorderly person, as defined in this act, shall fail to cause such juvenile disorderly person to attend said recognized school, then complaint against such juvenile disorderly person may be made, heard, tried and determined, in the same manner as is provided for in case the parent pleads inability to cause said juvenile disorderly person to attend said recognized school; and it is further provided, that no child under the age of nine years shall be sent to a juvenile reformatory under the provisions of this act.

8. *And be it enacted*, That it shall be the duty of the officers empowered, detailed, or appointed under the provisions of this act to assist in the enforcement thereof, to institute, or cause to be instituted, proceedings against any parent, guardian, or other person having legal charge and control of any child, or any person, company, or corporation violating any of the provisions of the sections of this act; *provided*, this law shall not be operative in those school districts of the State where there are not sufficient accommodations to seat the children compelled to attend school under the provisions of this act; and that no prosecution shall be instituted against any parent, guardian or child unless they have received due notification from an officer empowered under this act that they are acting in violation of the provisions of this act.

9. *And be enacted*, That when there is not within the distance of two miles from the factory or shop in which a child under the age of fifteen years is employed, or from the residence of the child, a recognized efficient school, attendance at a school temporarily approved by an inspector of factories and workshops shall, for the purpose of this act, be deemed attendance at a recognized, efficient school, and the inspector of factories shall immediately report to the education department every case of the approval of a school by him under this section.

10. *And be it enacted*, That two weeks' attendance of children between twelve and fifteen years of age at a recognized half-time or evening school shall, for all purposes of this act, be counted as one week at a day school.

11. *And be it enacted*, That when any of the provisions of this act are violated by a corporation, proceedings may be had against any of the offi-

cers or agents of said corporation who, in any way, participate in or are cognizant of such violation by the corporation of which they are the officers or agents, and said officers or agents shall be subject to the same penalties as individuals similarly offending.

GENERAL FACTORY ACT.

1. *Be it enacted by the Senate and General Assembly of the State of New Jersey,* That any person or corporation engaged in manufacturing, which requires from persons in his or its employ, under penalty of forfeiture of a part of the wages earned by them, a notice of intention to leave such employ, shall be liable to the payment of a like forfeiture if he or it discharges without similar notice a person in such employ, unless in case of a general suspension of labor in his or its shop or factory.

2. *And be it enacted,* That all accidents in workshops, factories, or mines, which result in death shall be reported at once by the occupier to the inspector of workshops at Trenton, and the city or district physician, where one is employed as such, which notice may be given by mail.

3. *And be it enacted,* That the belting, shafting, gearing, and drums in all factories and workshops, when so placed as to be dangerous to persons employed therein while engaged in their ordinary duties, shall be securely guarded when practicable (possible); if otherwise then notice of its dangers shall be conspicuously posted in the factory or workshop.

4. *And be it enacted,* That no minor un'er eighteen years of age, or woman, shall be required to clean any part of the mill gearing or machinery in any factory or workshop while the same is in motion, or work between the fixed or traversing part of any machine while it is in motion by the action of steam, water, or other mechanical power.

5. *And be it enacted,* That the openings of all hoistways, hatchways, elevators, and well-holes upon every floor of a factory, or mercantile, or public building, shall be protected by good and sufficient trap-doors or self-closing hatches and safety-catches, or strong guard-rails at least three feet high, and all due diligence shall be used to keep such trap-doors closed at all times, except when in actual use by the occupant of the building having the use and control of the same

6. *And be it enacted,* That no explosive or inflammable compound shall be used in any factory, in such place and manner as to obstruct or render hazardous the egress of operatives in case of fire

7. *And be it enacted,* That no minor under the age of sixteen shall be employed in any manufacturing, mercantile, or mechanical establishment more than ten hours a day or sixty hours a week.

8. *And be it enacted,* That suitable places shall be provided in all factories and workshops where girls or women are employed, where unclean work of any kind has to be performed, for such girls or women to wash and dress, and that stairs in use by female employes in all factories and workshops be properly screened.

9. *And be it enacted,* That separate water-closets be provided for the use of employes of either sex in all manufacturing, mercantile, and mechanical establishments where persons of both sexes are employed

10. *And be it enacted,* That where the factories or workshops appear so overcrowded that, in the opinion of the inspectors of factories, there is danger to health, the inspectors shall have power, after being sup-

ported in their opinion by some reputable resident physician, to prohibit such overcrowding.

11. *And be it enacted*, That the inspector of factories shall have power to order a fan or other mechanical means of proper construction, if practicable, for the purpose of preventing the inhalation of dust in establishments where any process is carried on by which dust is generated and inhaled by the workers to an injurious extent.

12. *And be it enacted*, That all factories and mines be ventilated so as to render harmless all impurities as near as may be.

13. *And be it enacted*, That no cellar, room, or place shall be occupied as a bake-house which is less than one-half of its height above the level of the street, foot-way, or ground adjoining the same, unless the following regulations are complied with; First, no water-closet, earth-closet, privy, or ash-pit shall be within or communicate directly with the bake-house; second, no drain or pipe for carrying off sewage or other impure matter shall have an opening within a bake-house, unless such drain or pipe be trapped with a six-inch water-seal, both within and without the wall of the bake-house, and have a ventilating pipe of one-half the size of drain pipe between the wall and the outer trap, and which ventilating pipe shall run two feet above the roof of building.

14. *And be it enacted*, That the sleeping places for workmen and others employed in bake-houses shall be separate and distinct from the places used for the making of bread.

15. *And be it enacted*, That any person or corporation, being the owner, lessee, or occupant of any manufacturing establishment, factory, mine, workshop, or store, or owning or controlling the use of any building or room, shall, for the willful violation of any provision of this act, except sections one and two, be liable to a penalty of fifty dollars for each offense to be recovered in an action of debt in any district court in any city, or before any justice of the peace having due jurisdiction, and that any employe who shall be guilty of any violation of the provisions of this act shall be liable in a like action to a penalty of fifty dollars; that such action shall be prosecuted by and in the name of the inspector of factories; the trial shall proceed as other actions of debt, and the first process shall be a summons returnable in not less than five days or more than ten after issue, and it shall not be necessary to indorse the same as in *qui tam* actions; the finding of the court shall be that the defendant has or has not, as the case may be, incurred the penalty claimed in the demand of the plaintiff, and judgment shall be given accordingly; in case an execution shall issue and be returned unsatisfied, the court, on application, after notice to the defendant, may award an execution to take the body of the defendant, and in case such defendant is committed under such an execution, he shall not be discharged under the insolvent laws of the state, but shall only be discharged by the court making the order for the body execution, or one of the justices of the supreme court, when such court or justice shall be satisfied that further confinement will not accomplish the payment of the judgment and costs; *provided*, nothing herein shall subject any owner of a building or premises to any penalty unless he shall be the proprietor of the business conducted therein.

#### SUPPLEMENTARY ACT.

1. *Be it enacted by the Senate and General Assembly of the State of New Jersey*, That every person shall, within one month after he begins to

occupy a factory or workshop, notify one of the factory inspectors of such occupancy.

2. *And be it enacted*, That section two of the act to which this is a supplement be amended to read, viz: 2. *And be it enacted*, That all accidents in workshops, factories or mines, which prevent the injured person or persons from returning to work within two weeks, or which result in death, shall, within twenty-four hours after the expiration of such two weeks, or after the death, as the case may be, be reported by the person in charge of such workshop, factory or mine to one of the factory inspectors and to the city or district physician, where there is such an officer, which notice may be given by mail.

3. *And be it enacted*, That section six of the act to which this is a supplement be amended to read as follows: *And be it enacted*, That no minor or woman shall clean any part of the mill gearing or machinery in any factory or workshop while the same is in motion, or work between the fixed or traversing parts of any machine while it is in motion by the action of steam, water, or other mechanical power.

4. *And be it enacted*, That all factories, manufacturing establishments or workshops of two or more stories in height, in which thirty (30) or more persons are employed above the first floor thereof shall be provided with one or (if the proper officials deem necessary) more outside iron fire-escapes, not less than six feet in length and three feet in width, properly and safely constructed, guarded by iron railings not less than three feet in height, and taking in at least two windows at each story, and connected with the interior by easily accessible and unobstructed openings; and the said fire-escape shall connect by iron stairs, not less than twenty-four inches wide, the steps to be set not less than six inches tread, placed at not more than an angle of forty-five degrees slant, and protected by a well-secured hand rail on both sides, with a twelve-inch wide drop ladder from the lower platform reaching to the ground

5. *And be it enacted*, That for every twenty persons employed on every floor above the second floor of every factory and workshop there shall be one rope or portable fire escape, and that each story shall be amply supplied with means for extinguishing fire.

6. *And be it enacted*, That all the main doors, both inside and outside, in factories shall open outwardly, when the inspectors of factories in writing, so direct, and that no outside or inside door of any building wherein operatives are employed shall be so locked, bolted, or otherwise fastened during the hours of labor as to prevent egress.

7. *And be it enacted*, That no minor below the age of sixteen shall be employed at any work dangerous to health without a certificate of fitness from a reputable physician

8. *And be it enacted*, That factories and workshops in which women and children are employed, and where dusty work is carried on, shall be limewashed or painted at least once in every twelve months.

9. *And be it enacted*, That an abstract of the factory and workshop laws, to be prepared and furnished by the chief factory inspector, shall be affixed in a conspicuous place at the entrance of every factory and workshop.

10. *And be it enacted*, That if the inspector of factories find that the heating, lighting, ventilation or sanitary arrangement of any shop or factory is such as to be injurious to the health of the persons employed therein, or that the means of egress, in case of fire or other disaster, is not sufficient, or that the belting, shafting, gearing, elevators, drums and machinery in shops and factories are located so as to be dangerous



to employes and not sufficiently guarded, or that the vats, pans or structures filled with molten metal or hot liquid are not surrounded with proper safeguards for preventing accident or injury to those employed at or near them, he shall notify the proprietor of such factory or workshop to make the alterations or additions necessary within thirty days; and if such alterations or additions are not made within thirty days from the date of such notice, or within such time as said alterations can be made with proper diligence upon the part of said proprietors, said proprietors or agents shall be deemed guilty of violating the provisions of this act; it shall then be the duty of the inspectors to examine the matter in dispute, and if adverse to the appellant he shall carry out the alterations or additions directed by said inspectors within thirty days as aforesaid and under the like penalty.

11. *And be it enacted*, That section fifteen of the act to which this is a supplement be amended to read as follows: 11. *And be it enacted*, That any person or corporation, being the owner, lessee or occupant of any manufacturing establishment, factory, mine, workshop or store, or owning or controlling the use of any building or room, shall, for the violation of any provision of this act or of the act to which this is a supplement, be liable to a penalty of fifty dollars for each offense, to be recovered in an action of debt in any district court in any city or before any justice of the peace having due jurisdiction, and that any employe who shall be guilty of any violation of the provisions of this act shall be liable in a like action to a penalty of not more than fifty dollars, as the court shall fix; that such action shall be prosecuted in the name of the inspector of factories, the trial shall proceed as other actions upon contract, and the first process shall be a summons, returnable in not less than five days or more than ten days after issue, and it shall not be necessary to endorse the same as in *qui tam* actions; the finding of the court shall be that the defendant has or has not, as the case may be, incurred the penalty claimed in the demand of the plaintiff, and judgment shall be given accordingly; in case an execution shall issue and be returned unsatisfied, the court, on application, after notice to the defendant, may award an execution to take the body of the defendant, and in case such a defendant is committed under such an execution he shall not be discharged under the insolvent laws of the State, but shall only be discharged by the court making the order for the body execution, or one of the justices of the supreme court, when such court or justice shall be satisfied that further confinement will not accomplish the payment of the judgment and costs.

12. *And be it enacted*, That all acts or parts of acts inconsistent with the provisions of this act be and the same are hereby repealed.

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## OHIO.

### TO APPORTION THE STATE OF OHIO INTO INSPECTION DISTRICTS AND FOR OTHER PURPOSES.

SECTION 2. The governor shall appoint one chief inspector, by and with the advice and consent of the senate, who, with the approval of the governor, shall appoint three district inspectors. The chief inspector and district inspectors shall be competent and practical mechanics.

The chief inspector shall hold his office for a term of four years, and shall have his office in the state house, where shall be kept the records of his office, and the district inspectors shall hold their office for the term of three years from the first day of May after their respective appointments, and until their successors are appointed and qualified; the first appointment hereunder shall be made within thirty days after the passage of this act; in case of the resignation, removal or death of the chief inspector, the vacancy shall be filled in the manner above provided for the original appointments for the unexpired term only of the position so made vacant.

SEC. 3. The chief inspector and district inspectors shall give their whole time and attention to the duties of their offices respectively; it shall be their duty to visit all shops and factories in their respective districts as often as possible, to see that all the provisions and requirements of this act are strictly observed and carried out; they shall carefully inspect the sanitary condition of the same [and it shall be their duty], to examine the system of sewerage in connection with said shops and factories the situations and conditions of water-closets or urinals in and about such shops and factories, and also the system of heating, lighting and ventilating all rooms in such shops and factories where persons are employed at daily labor; also as to the means of exit from all such places in case of fire or other disaster, and also all belting, shafting, gearing, elevators, drums and machinery of every kind and description in and about such shops and factories, and see that the same are not located so as to be dangerous to employes when engaged in their ordinary duties, and that the same, so far as practicable, are securely guarded, and that every vat, pan or structure filled with molten metal or hot liquid shall be surrounded with proper safe guards for preventing accident or injury to those employed at or near them; and that all such are in a proper sanitary condition, and are adequately provided with the means of escape in case of fire or other disaster.

SEC. 2573b. The said inspectors shall have entry into all such shops or factories at all reasonable times, and it shall be unlawful for the owner, proprietors, agents or servants in such factories or shops to prevent, at all reasonable hours, their entry into such shops or factories for the purpose of such inspections.

SEC. 2573c. That said inspectors, if they find upon such inspection that the heating, lighting, ventilation or sanitary arrangement of any such shop or factory is such as to be injurious to the health of persons employed or residing therein, or that the means of egress in case of fire or other disaster is not sufficient, or that the belting, shafting, gearing, elevators, drums and machinery in such shops and factories are located so as to be dangerous to employes, and not sufficiently guarded, or that the vats, pans or structures filled with molten metal or hot liquid are not surrounded with proper safe-guards for preventing accident or injury to those employed at or near them, shall notify the owners, proprietors or agents of such shops or factories to make the alterations or additions necessary within thirty (30) days; and if such alterations or additions are not made within thirty (30) days from the date of such notice, or within such time as said alterations can be made with proper diligence upon the part of such proprietors or owners, said proprietors, owner or agent so notified shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not more than two hundred (\$200) and not less than ten (10) dollars, which fine shall be paid into the treasury of the county in which conviction is had.

SEC. 4. The district inspectors shall make a record of all examina-

tions of shops and factories in their respective districts, showing the date when made, the conditions in which such shops and factories are found, and what changes were ordered, the number of shops and factories in their respective districts, the number of men, women and children employed in each shop or factory, together with all such other facts and information of public interest concerning the condition of such shops and factories as they may deem useful and proper, which record shall be filed in the office of the chief inspector every week, to be by him recorded, and so much thereof as may be of public interest to be included in his annual report.

#### RELATING TO THE EMPLOYMENT OF MINORS IN WORKSHOPS AND FACTORIES.

SEC. 6986. That no minor under the age of twelve years shall be employed in any factory, workshop or establishment wherein the manufacture of any goods of any kind is carried on.

SEC. 6986aa. No minor under the age of eighteen years shall be employed in any of the places named for a longer period than ten hours a day, and in no case shall the hours of labor exceed sixty in one week; and every employer shall post in a conspicuous place in every room where such persons are employed a printed notice, stating the number of hours required of them in each day of the week; the form of such printed notice shall be furnished by the chief inspector of workshops and factories, and shall be approved by the attorney-general; and it shall also be the duty of every employer of minors to keep a record, which shall be open to the inspection of the chief inspector of workshops and factories and his assistants, giving the name of each minor employed, his or her name, date and place of birth, and present residence of parents or guardians.

SEC. 6986bb. Any person or corporation who shall employ any person contrary to the provisions of this act, or who shall violate any of the provisions of this act, shall, upon conviction thereof, be fined in any sum not less than fifty nor more than one hundred dollars, or imprisoned not less than thirty nor more than ninety days.

SEC. 6986c. It shall be the duty of the inspector of shops and factories to prosecute all violations of this act, when the same shall come to his knowledge, in any court of competent jurisdiction.

#### FOR THE PRESERVATION OF THE HEALTH OF FEMALE EMPLOYEES.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio,* That every person or corporation employing female employees in any manufacturing, mechanical or mercantile establishment in this state shall provide suitable seats for the use of the female employees so employed, and shall permit the use of such by them when they are not necessarily engaged in the active duties for which they are employed.

SEC. 2. Any person or corporation violating any of the provisions of this act shall be punished by a fine of not less than ten dollars nor more than seventy-five dollars for each offense.

#### TO PROVIDE FOR THE COLLECTION OF INFORMATION RELATIVE TO ACCIDENTS OCCURRING IN THE WORKSHOPS AND FACTORIES OF THE STATE.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio,* That it shall be the duty of all manufacturers of the state, to forward by mail to the chief inspector of workshops and factories, at Columbus,

a report of each and every serious accident resulting in bodily injury to any person which may occur in their establishment, giving particulars of the same as fully as can be ascertained, upon blanks which shall be furnished by the chief inspector of workshops and factories. If death shall result to any employe from any such accident, said report shall contain the age, name, sex and employment of the deceased, whether married, the number of persons, if any, deprived of support in consequence thereof, and the cause of the accident, if known. If the accident has caused bodily injury of such nature as to prevent the person injured from returning to his or her employment within six or more days after the occurrence of the accident, then the report shall contain the age, name, sex and the employment of the disabled, the nature and extent of the injury received, how caused, if known, how long continually disabled, loss of time and wages therefrom, and if possible the expense thereby incurred in full.

#### PENALTY FOR FAILURE TO SO REPORT.

SECTION 2. That any manufacturer who shall fail to comply with the requirements of this act in each case of death by accident within seven days thereafter, and in each case of injury by accident within thirty days thereafter, shall be fined in any sum not less than ten dollars nor more than fifty dollars.

#### THE TERM "MANUFACTURER" DEFINED.

The term manufacturer, as applied in section one and section two of this act, shall be held to mean any person who, as owner, manager, lessee, assignee, receiver, contractor, or who as agent of any incorporated company, makes or causes to be made, any kinds of goods or merchandise, or who owns, controls, or operates any street railway, laundrying establishment, or is engaged in the construction of buildings, bridges or structures, or in loading or unloading vessels, or cars, or moving heavy materials, or operating dangerous machinery, or in the manufacture or use of explosives.

SECTION 3. It shall be the duty of the chief inspector of workshops and factories to supply all blanks necessary to make said reports, as required in this act, and to prosecute all violations of this act when the same shall come to his knowledge; provided, that the furnishing of said blanks shall be a condition precedent to prosecution in any case.

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### NEW YORK.

#### TO REGULATE THE EMPLOYMENT OF WOMEN AND CHILDREN.

SECTION 1. No minor under the age of eighteen years nor any woman under twenty-one years shall be employed at labor in any manufacturing establishment in this State for a longer period than sixty hours in any one week, unless for the purpose of making necessary repairs.

SEC. 2. No child under thirteen years of age shall be employed in any manufacturing establishment within this State. It shall be the duty of every person so employing children to keep a register in which shall be recorded the name, birthplace, age, and place of residence of

every person so employed by him under the age of sixteen years. And it shall be unlawful for any manufacturing establishment to hire or employ any child under the age of sixteen years without there is first provided and placed on file an affidavit made by the parent or guardian, stating the age, date, and place of birth of said child; if said child have no parent or guardian, then such affidavit shall be made by the child, which affidavit shall be kept on file by the employer, and which said register and affidavit shall be produced for inspection on demand made by the inspector, assistant inspector, or any of the deputies appointed under this act.

SEC. 3. Every person, firm, or corporation employing women under twenty one years, or minors under eighteen years of age, in any manufacturing establishment, shall post and keep posted in a conspicuous place in every room where such help is employed, a printed notice stating the number of hours per day for each day of the week required of such persons, and in every room where children under sixteen years of age are employed, a list of their names with their age.

SEC. 4. Any person who knowingly violates or omits to comply with any of the foregoing provisions of this act, or who knowingly employs or suffers or permits any child to be employed in violation of its provisions, shall, on conviction, be punished by a fine of not less than fifty nor more than one hundred dollars, and in default of payment of such fine, by imprisonment for not less than thirty nor more than ninety days.

SEC. 5. No person or corporation employing less than five persons or children excepting in any of the cities of this State, shall be deemed a manufacturing establishment within the meaning of this act.

SEC. 6. The governor shall, immediately after the passage of this act, appoint, with the advice and consent of the senate, a factory inspector at a salary of two thousand dollars per year, and one assistant at a salary of fifteen hundred dollars per year, whose term of office shall be three years. The said inspector and assistant shall be empowered to visit and inspect, at all reasonable hours, and as often as practicable, the factories, workshops, and other establishments in the State where the manufacture of goods is carried on, and to report to the bureau of labor statistics of this State on or before the thirtieth day of November of each year. It shall also be the duties of said inspector to enforce the provisions of this act, and to prosecute all violations of the same before any magistrate or any court of competent jurisdiction in the State.

SEC. 7. All necessary expenses incurred by said inspectors in the discharge of their duty shall be paid from the funds of the State, upon the presentation of proper vouchers for the same, provided that not more than twenty-five hundred dollars shall be expended by them therefor in any one year.

SEC. 8. It shall be the duty of the owner, agent, or lessee of any manufacturing establishment where hoisting shafts or well-holes are used, to cause the same to be properly and substantially inclosed or secured, if, in the opinion of the inspector, it is necessary to protect the life or limbs of those employed in such establishments. It shall also be the duty of the owners, agent, or lessee to provide or cause to be provided such proper trap or automatic doors, so fastened in or at all elevator ways as to form a substantial surface when closed, and so constructed as to open and close by action of the elevator in its passage, either ascending or descending.

SEC. 9. Proper and substantial hand rails shall be provided on all stair-

ways in manufacturing establishments, and where, in the opinion of the inspector, it is necessary, the steps of such stairs in all such establishments shall be substantially covered with rubber, securely fastened thereon, for the better safety of persons employed in said establishments. The stairs shall be properly screened at the sides and bottom, and all doors leading in or to such factory shall be so constructed as to open outwardly where practicable, and shall be neither locked, bolted nor fastened during working hours.

SEC. 10. Fire-escapes shall be provided on the outside of all factories three or more stories in height, connecting with each floor above the first, well fastened and secured, and of sufficient strength. Stationary stairs or ladders shall be provided on the inside, from the upper story to the roof, as a means of escape in case of fire.

SEC. 11. It shall also be the duty of the owner of such factory, or his agent, superintendent, or other person in charge of the same, to furnish and supply, or cause to be furnished and supplied, in the discretion of the inspector, where machinery is in use, automatic shifters, or other mechanical contrivances, for the purpose of throwing on or off belts on pulleys; and no female under the age of twenty-one years, and no male under eighteen years of age, shall be allowed to clean machinery while in motion. All gearing and belting shall be provided with proper safeguards.

SEC. 12. It shall be the duty of the agent superintendent, or other person having charge of a factory or workshop, or of any floor or part thereof, to report in writing to the factory inspector all accidents or injury done to any person employed in such factory, within forty-eight hours of the time of the accident, stating as fully as possible the extent and cause of such injury, and the place where the injured person has been sent.

SEC. 13. A suitable and proper wash-room and water-closet shall be provided for females where employed, and the water-closets used by females shall be separate and apart from those used by males, and shall be properly screened and ventilated, and at all times kept in a clean condition.

SEC. 14. Not less than forty-five minutes shall be allowed for the noon-day meal in any manufacturing establishment in this state. The factory inspector, his assistant or any of his deputies shall have power to issue written permits in special cases, allowing a shorter meal-time at noon, and such permit must be conspicuously posted in the main entrance of the establishment, and such permit may be revoked at any time the inspector deems necessary, and shall only be given where good cause can be shown.

SEC. 15. The factory inspector, now or hereafter appointed under and by virtue of the provisions of chapter four hundred and nine of the laws of eighteen hundred and eighty-six, is hereby authorized to appoint such number of persons as in his judgment may be necessary, not exceeding eight, who shall be known as deputy factory inspectors, either or any one of whom may be appointed to act as clerk in the main office, and whose duties it shall be to enforce the provisions of this act and of chapter four hundred and nine of the laws of eighteen hundred and eighty-six. The powers of said deputies shall be the same as the powers of the factory inspectors, subject to the supervision and direction of the factory inspector.

SEC. 16. The district attorney of any county of this state is hereby authorized, upon the request of the factory inspector, or either of his deputies, or of any other person of full age, to commence and prosecute

## *State Inspection Laws.*

to termination before any recorder, police justice, or court of record, in the name of the people of the state, actions or proceedings against any person or persons reported to him to have violated the provisions of this act.

SEC. 17. The traveling expenses of each of said deputies shall be approved by the inspector and audited by the comptroller of the state, before payment, and said deputy inspectors shall have an annual salary of ten hundred dollars, to be paid monthly by the treasurer of state out of any moneys not otherwise appropriated.

SEC. 18. Said factory inspector shall have power to divide the state into districts and assign one of said deputies to each district, and may transfer any of the deputies to other districts in case the best interests of the state require it. The inspector shall have the power of removing any of the deputy inspectors at any time.

SEC. 19. The factory inspector shall receive an annual salary of two thousand dollars, and the assistant factory inspector shall receive an annual salary of fifteen hundred dollars, and they shall make a report to the legislature on or before the tenth day of January of each year; and an office shall be furnished by the capitol commissioner, in the new capitol, as soon as practicable which shall be set apart for the use of the factory inspector. The factory inspector, his assistant and deputies shall have the same power to administer oaths as is now given to notaries public, in cases where persons desire to verify documents connected with the proper enforcement of this act.

SEC. 20. Any person who violates or omits to comply with any of the foregoing provisions of this act shall be deemed guilty of a misdemeanor, and on conviction shall be punished by a fine of not less than twenty nor more than one hundred dollars, or by imprisonment for not less than thirty nor more than ninety days, or by both such fine and imprisonment.

SEC. 21. A copy of this act shall be posted in each work-room of every manufacturing or mercantile house in this state where persons are employed who are affected by the provisions of this act.

### APPRENTICES AND EMPLOYERS.

SECTION 1. On and after the passage of this act, it shall not be lawful for any person or persons in this State to employ or take as an apprentice any minor person to learn the art or mystery of any trade or craft without first having obtained the consent of such person's legal guardian or guardians; nor shall any minor person be taken as an apprentice aforesaid unless an agreement or indenture be drawn up in writing, in accordance with the provisions of this act, and duly executed under seal by the person or persons employing said apprentice, and also by the parents or parent, if any be living, or by the guardian or guardians of said apprentice, and likewise by said minor persons so becoming an apprentice.

SEC. 2. Said agreement or indenture, in order to make the law valid, shall contain the following covenants and provisions:

1. That said minor person shall be bound to serve his employer or employers for a term of not less than three nor more than five years.

2. That said minor person so indentured shall not leave his said employer or employers during the term for which he shall be indentured, and if any said apprentice so indentured as aforesaid shall leave his said employer or employers, except as hereinafter provided,

the said employer or employers may compel the return of the said apprentice under the penalties of this act.

3. That said employer or employers shall covenant and agree in said indenture to provide, at all times during the continuance of the same, suitable and proper board, lodging and medical attendance for said apprentice, and said employer or employers shall also further covenant and agree to teach or cause to be carefully and skillfully taught to his or their said apprentice every branch of his or their business to which said apprentice may be indentured and said employer or employers shall be further bound, at the expiration of said apprenticeship, to give to said apprentice a certificate in writing stating that said apprentice has served a full term of apprenticeship of not less than three nor more than five years at such trade or craft as may be specified in said indenture.

SEC. 3. Any person or persons taking an apprentice without complying with the provisions of this act shall be deemed guilty of a misdemeanor, and on conviction thereof before any magistrate or court having jurisdiction, held in the county in which the business of said employer or employers may be conducted, shall be subject to a fine of not less than five hundred dollars, the fine to be paid to the treasurer of the said county, for the use and benefit of said county. It shall be the duty of the factory inspector and the deputy factory inspectors to see to it that the duties and obligations of employers to their apprentices are observed and enforced, to enforce this act, and to prosecute such employers for a failure to perform such duties and obligations, or any violation of this act.

SEC. 4 Any and all indentures made under and in pursuance of the provisions of this act shall not be canceled or annulled before the expiration of the term of said indentures, except in case of death; or by the order of or judgment of the County or Supreme Court of this State for good cause, and any apprentice so indentured who shall leave his employer or employers without his or their consent, or without sufficient cause, and shall refuse to return, may be arrested upon the complaint of said employer or employers and taken before any magistrate having jurisdiction of misdemeanors, who may cancel said indentures, and on conviction may commit said apprentice to the house of correction, house of refuge or county jail, in and for said county, for such length of time as such magistrate may deem just, or until said apprentice shall have attained the age of twenty-one years, and in case said apprentice, so indentured, shall willfully neglect or refuse to perform his portion of the contract as specified in said indenture, then said indenture may be canceled in the manner aforesaid, and said apprentice so violating said indentures shall forfeit all back pay and all claims against said employer or employers, and said indentures shall be canceled.

SEC. 5. Should any employer or employers neglect or refuse to teach, or cause to be taught to said apprentice the art or mystery of the trade or craft to which said apprentice has been indentured, or fail at any time to provide suitable and proper board, lodging and medical attendance, said apprentice, individually, or his parent or parents, guardian or guardians, may bring an action against said employer or employers, to recover damages sustained by reason of said neglect or refusal; and if proved, to the satisfaction of the court, said court shall direct said indentures to be canceled, and may impose a fine on said employer or employers, not exceeding \$1,000, and not less than \$100, and said fine



shall be collected and paid over to said apprentice or his parent or guardian, for his sole use and benefit.

SEC. 6. Any indenture made and executed, wherein parts conflict with, or are not in accordance with the provisions of this act, shall be invalid, and without any binding effect.

SEC. 7. All acts or parts of acts inconsistent herewith are hereby repealed.

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## WISCONSIN.

### POWERS AND DUTIES OF THE BUREAU OF LABOR AND INDUSTRIAL STATISTICS.

SECTION 4. The duties of the said commissioner of the Bureau of Labor and Industrial Statistics shall be to collect, collate, and publish statistics and facts relative to the manufactures, industrial classes and material resources of the state; and especially to examine into the relations between labor and capital, the means of escape from fire, and protection of life and health in factories and workshops, the employment of illegal child labor, the exaction of unlawful hours of labor from women and children, the educational, sanitary, moral and financial condition of laborers and artisans, the cost of food, fuel, clothing and building material, the causes of strikes and lockouts, as well as kindred subjects and matters pertaining to the welfare of industrial interests and classes.

SEC. 5. The commissioner, his deputy, or the factory inspector shall have power to enter any factory, or workshop in which labor is employed, for the purpose of gathering facts and statistics, or of examining the means of escape from fire, and the provisions made for the health and safety of operatives in such factory or workshop; and in case the officer of the bureau shall discover any violations of or neglect to comply with the laws in respect to child labor, hours of labor for women or children, fire-escapes, and similar enactments now or hereafter to be made, he shall notify the owner or occupant of such factory or workshop, in writing, of the offense or neglect, and if such offense or neglect is not corrected or remedied within thirty days after the service of the notice aforesaid, he shall lodge formal complaint with the district attorney of the county in which the offense is committed or the neglect occur, whereupon that officer shall proceed at once against the offender according to law.

SEC. 6. The factory inspector or any officer of the bureau may examine hotels and lodging or boarding houses, for the purpose of discovering whether they are properly equipped with lawful fire-escapes; and he may post in any hotel, lodging or boarding house so examined, the laws upon this matter, together with his official statement as to whether the said laws are fully complied with by said hotel, lodging or boarding house. And any hotel, lodging or boarding house keeper, or other person, who shall mutilate, destroy or remove from any building or buildings, the said laws or statement so posted, shall be fined fifty dollars for each and every offense, upon complaint of any officer of the bureau, or any citizen. Whenever any hotel, lodging or boarding house that has been posted as not complying with the terms of the laws in respect to fire-escapes, shall be properly provided and equipped

with lawful fire escapes, and the bureau shall be notified thereof, the commissioner shall at once order a new statement setting forth that fact, to be posted in said hotel, lodging or boarding house. And the bureau shall keep a record of all buildings so examined and posted.

SEC. 7. The factory inspector, or any officer of the bureau, may post in any factory or workshop examined by him, the laws now or hereafter to be made in respect of child labor, hours of labor, fire-escapes, or other matters pertaining to the health and safety of artisans; and if the owner, manager or proprietor of such factory or workshop, or his agent, or any person whomsoever, shall remove, destroy or mutilate the laws so posted, he shall, on complaint of any officer of the bureau, or any citizen, be fined fifty dollars for each and every offense.

SEC. 8. The said commissioner shall have power to prescribe blank forms, and transmit them to employers, which shall be filled out clearly and completely, under oath, by the person or persons to whom they are sent, with the facts, statistics and statements asked for, and returned to him within such reasonable time as he may fix. In case any owner or occupant or his agent, shall refuse to admit any officer of the said bureau to his workshop or factory, he shall forfeit the sum of ten dollars for each and every offense, and if he shall, through his agent or otherwise, neglect, fail or refuse to fill out the said blank forms, and verify and return them as required, he shall forfeit the sum of ten dollars for each and every day the said blanks may be so delayed beyond the time fixed by the commissioner for their return. The forfeits named and provided in this act shall be sued for in the name of the state, by the district attorney of the proper county, upon complaint of any officer of said bureau, or any citizen, and shall be paid into the school fund.

PASSENGER AND OTHER ELEVATORS—LIABILITY OF PROPRIETORS—DUTY  
OF DISTRICT ATTORNEYS.

SECTION 1, Chap. 453, Laws of 1887. The state factory inspector, his assistant, or any officer of the bureau of labor and industrial statistics, may examine elevators used for carrying freight or passengers, or both, and shall condemn those found to be defective or unsafe by written notice given to the proprietor or owner, or the agent of either, or by posting said notice on the elevator walls or cab. And if any elevator so condemned shall be continued in use without repairs, and loss of limb or life result therefrom, the owner or proprietor so keeping it in use shall be held fully responsible, civilly and criminally for said loss of life or limb.

SEC. 2. The said factory inspector or any officer named in section 1, of this act, shall have power to order bull-wheels, fly-wheels, tumbling rods, elevator wells, stairways, shafting or dangerous machinery of any kind to be guarded and protected, so as not to hazard the safety of workmen or visitors. Any person refusing to obey his orders in this respect, shall be fined fifty dollars for each and every offense.

SEC. 3. Whenever the state factory inspector, or his assistant, or any officer of the bureau of labor and industrial statistics, shall file complaint with any district attorney that any hotel, factory or public building or any structure whatsoever in his county, is being used without the fire-escapes, watchmen or other means of safety prescribed

by law, the said district attorney shall at once proceed against the offender according to law; and shall without further aid or presence of the state factory inspector or the other officers named in this section, secure the necessary witnesses and evidence for the complete information of the jury. And in case he shall refuse so to do, the state factory inspector or any officer named in this act, may file charges against him with the governor, and ask his removal for willful neglect of duty and malfeasance of office.

#### FIRE-ESCAPES—HOTELS.

SECTION 1727, Revised Statutes. It shall be and is hereby made the duty of hotel or inn-keepers, keeping a hotel or inn of three or more stories in height, to provide and furnish such hotel or inn with one or more good and substantial metallic fire proof ladders, reaching from the cornice to the top of the lower story, or to the ground, on the outside of such building, and placed in such position as to be easy of access to the occupants of such building in case of fire. So long as the foregoing provision is uncomplied with by him, no hotel or inn-keeper shall receive any charges whatever from any objecting traveler, boarder or guest occupying rooms on or above the third floor of his hotel or inn.

SECTION 1. Every inn or hotel, or other building in this state more than two stories in height, containing apartments above the ground floor, designed for occupation for fifty people or more, shall be provided with not less than two flights of fire-proof stairs outside, said stairways to be located on different sides of said inn, hotel, or other building, in each case connecting the cornice with the top of the first story, of any such inn, hotel, or other building, with a platform, balcony, piazza, or other safe and convenient resting place, on a level with the floor of each story so connected. Such stairways herein named shall in every case be convenient of access from the interior of any such building, commodious in construction, and of sufficient strength and firmness to render the same amply safe and reliable for the purpose of ascent or descent in case of danger from fire.

SEC. 2. The inside walls or casings of every elevator for the conveyance of passengers to and from the upper stories of any such building as is described in the preceding section of this act, shall be constructed of fire-proof material throughout.

SEC. 3. In all inns, hotels or other buildings hereinbefore described, not less than one efficient watchman shall be on service from ten o'clock P.M. until five o'clock A.M. during each and every night that said inn, hotel or other building described is occupied, and every said watchman shall be required to establish the fact of his fidelity on every occasion when on duty, by the most efficient methods in use for that purpose.

SEC. 4. In every inn, hotel or other building hereinbefore described, there shall be posted in every room, in legible print, a brief and accurate statement of all means of safety and escape in case of fire.

SEC. 5. Any owner, landlord or other person in charge of any building hereinbefore described, and coming within the provisions of this act, who shall omit to comply with the provisions of this act, or who shall knowingly permit any violation of the provisions of this act, shall be held guilty of a misdemeanor in permitting the violation of any provisions of this act, and for such misdemeanor may be punished by a fine not exceeding one thousand dollars, or by imprisonment not exceeding ninety days, on each conviction thereof.

**FIRE-ESCAPES—FACTORIES**

SECTION 1. Any person, persons, or body corporate owning, occupying or controlling any factory, workshop or structure three or more stories high, in which several persons are employed at any kind of labor, on or above the third floor or story, shall provide and keep connected with the same, one or more good and substantial metallic or fire-proof ladders, stairs or stairways, ready for use at all times, reaching from the cornice to the ground, on the outside of such building, and placed in such position as to be easy of access to the occupants of such building in case of fire, and sufficient to furnish reasonable means of escape to the persons employed therein, from each and every floor or story. And any such person, persons or corporate body who shall for three months after the passage and publication of this act fail to provide and keep such means of escape from fire, shall be subject to a fine not exceeding one hundred dollars or to imprisonment in the county jail not exceeding three months, at the discretion of the court.

**OUTWARD SWINGING DOORS.**

SECTION 1. All churches, public and private school-houses, hotels, factories or other manufacturing establishments, constructed at any time after the passage of this act, shall be so constructed that the doors shall swing outward, or both in and out, as the builders thereof may elect.

**DUTIES OF ARCHITECTS AND OTHERS.**

SECTION 1. Any architect who shall draw plans for, or superintend the erection of any school-house, church, hall, factory or hotel, without providing in said plans the fire-escapes and outward swinging doors now required by law, shall be guilty of a misdemeanor, and on conviction thereof, shall be fined twenty-five dollars for the first offense, and one hundred dollars for each subsequent offense.

SEC. 2. Any person or persons, body corporate, official or officials, who shall erect or cause to be erected, any building named in this act, without providing the fire escapes and outward swinging doors, or who shall neglect to provide the same as required by law, shall be guilty of a misdemeanor, and upon conviction thereof, shall be fined one hundred dollars.

**BLACK-LISTING EMPLOYEES.**

SECTION 1. Any two or more employers who shall agree, combine, and confederate together for the purpose of interfering with or preventing any person or persons seeking employment from obtaining such employment, either by threats, promises, or by circulating or causing the circulation of the so-called black-list, or by any means whatsoever, or for the purpose of procuring or causing the discharge of any employe or employees by any means whatsoever, shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by imprisonment in the county jail for a period of not more than one month or by a fine not less than fifty dollars, or by both.

**HOURS OF LABOR.**

SECTION 1729, Revised Statutes. In all engagements to labor in any manufacturing or mechanical business, where there is no express con-

tract to the contrary, a day's work shall consist of eight hours, and all engagements or contracts for labor in such cases shall be so construed; but this shall not apply to any contract to labor by the week, month or year.

SEC. 1728. In all manufactories, workshops and other places used for mechanical or manufacturing purposes, the time of labor of children under the age of eighteen years and of women employed therein, shall not exceed eight hours in one day; and any employer, stockholder, director, officer, overseer, clerk or foreman who shall compel any woman or any such child to labor exceeding eight hours in any one day, or who shall permit any child under fourteen years of age to labor more than ten hours in any one day in any such place, if he shall have control over such child sufficient to prevent it, or who shall employ at manual labor any child under twelve years of age in any factory or workshop where more than three persons are employed, or who shall employ any child of twelve and under fourteen years of age in any such factory or workshop for more than seven months in any one year, shall be punished by a fine not less than five nor more than fifty dollars for each such offense.

#### INTERFERING WITH LABORERS OR MACHINERY.

SECTION 1. Any person who by threats, intimidation, force or coercion of any kind, shall hinder or prevent any other person from engaging in or continuing in any lawful work or employment, either for himself or as a wageworker, or who shall attempt to so hinder or prevent, shall be punished by a fine not exceeding one hundred dollars, or by imprisonment in the county jail not more than six months, or by both fine and imprisonment in the discretion of the court.

SEC. 2. If any person who shall individually or in association with one or more others, willfully break, injure or remove any part or parts of any railway car or locomotive, or any other portable vehicle or traction engine, or any part or parts of any stationary engine, machine, implement or machinery, for the purpose of destroying such locomotive, engine, car, vehicle, implement or machinery, or of preventing the useful operation thereof, or who shall in any other way wilfully or maliciously interfere with or prevent the running or operation of any locomotive, engine or machinery, shall be punished by fine not exceeding one thousand dollars or by imprisonment in the county jail or the state prison not exceeding two years, or by both fine and imprisonment, in the discretion of the court.

#### HEALTH AND SAFETY OF EMPLOYEES.

SECTION 1. No person, persons or corporation shall employ and put to work in any factory, workshop or other place of employment, or in any room, or other part of such factory, workshop, or other place of employment, more persons than the laws of health will warrant, as shall be determined by the board of health.

SEC. 2. Every stationary vat, pan or other structure with molten metal or hot liquids shall be surrounded with proper safeguards for preventing accidents or injury to those employed at or near them. All belting, shafting, gearing, hoists, fly-wheels, elevators and drums of manufacturing establishments so located as to be dangerous to employes when engaged in their ordinary duties shall be securely guarded or

fenced so as to be safe to persons employed in any such place of employment.

SEC. 3. Any person, company or corporation who shall refuse or fail to comply with the provisions of this act, shall forfeit not to exceed twenty-five dollars for each offense, and every day's failure after the first conviction shall constitute a separate offense, after due notice by the state factory inspector.

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## CONNECTICUT.

### CHILD LABOR.

SECTION 1. No child under thirteen years of age shall be employed in any mechanical, mercantile, or manufacturing establishment.

SEC. 2. Any person acting for himself, or as agent in any way whatever, of any mechanical, mercantile, or manufacturing establishment, who shall employ, or authorize or permit to be employed in such establishment, any child in violation of the preceding section, shall be fined not more than sixty dollars, and every week of such illegal employment shall be a distinct offense; provided, that no person shall be punished under this act for the employment of any child when, at the time of such employment, the employer shall demand and thereafter during such employment keep on file the certificate of any town clerk, or of the teacher of the school where such child last attended, stating that such child is more than thirteen years of age, or a like certificate of the parent or guardian of such child in such cases only where there is no record of the child's age in the office of the town clerk, and such child has not attended school in this state. Any parent or guardian who shall sign any certificate that his child or ward is more than thirteen years of age, when in fact such child or ward is under thirteen years of age, shall be fined not more than sixty dollars.

SEC. 3. It shall be the duty of the state board of education and the school visitors, boards of education, and town committees of towns to enforce this act; and for that purpose the state board of education may appoint agents, under its supervision and control, for terms of not more than one year, who shall be paid not to exceed five dollars per day for time actually employed and necessary expenses, and whose accounts shall be approved by said board and audited by the comptroller.

### CONCERNING THE INSPECTION OF FACTORIES.

SECTION 1. *Be it enacted by the Senate and House of Representatives in General Assembly, convened,* The governor shall appoint an inspector of factories who shall hold his office from the first day of July, 1887, till the first day of July, 1889, and until his successor is appointed and qualified. The governor shall, with the consent of the senate, within sixty days after the organization of the general assembly in January, 1889, and every two years thereafter, appoint an inspector of factories, who shall hold his office from the first day of the succeeding July for a term of two years, and until his successor is appointed and qualified. In case of vacancy in the office of inspector through death, resignation, inability or removal, the governor shall fill the same until filled in the

manner above provided for the appointment of inspector; and the governor may remove the inspector for cause.

SEC. 2. The inspector of factories shall, as often as practicable, carefully examine all buildings and places where machinery shall be used, and shall have authority to enter such buildings and places at all proper times for the purpose of such inspection, and shall receive for his services the sum of fifteen hundred dollars per annum, payable monthly, and necessary expenses. He shall, on or before the first day of December in each year, make a report to the governor of the condition, as respects safety to life and health, of the factories, buildings, and places visited by him, and such report shall be printed for the use of the general assembly at each of its regular sessions.

SEC. 3. All factories and buildings where machinery shall be used shall be well ventilated, and kept as clean as the nature of the business will permit. The belting, shafting, gearing, machinery, and drums of all factories and buildings where machinery shall be used, when so placed as, in the opinion of the inspector, to be dangerous to persons employed therein while engaged in their ordinary duties, shall, as far as practicable, be securely guarded. No machinery other than steam engines in a factory shall be cleaned while running, after notice forbidding the same is given by the inspector to the owners or operators of the factory.

SEC. 4. The inspector may order the opening of all hoistways, hatchways, elevator-wells, and well-holes upon every floor of any factory or other building where machinery shall be used to be protected by good trap-doors, self-closing hatches, and safety-catches, or other safe-guards such as will insure the safety of the employes in such factory or other building where machinery shall be used, and all due diligence shall be used to keep such trap-doors closed at all times, except when in actual use by an occupant of the building having use and control of the same.

SEC. 5. Every person or corporation managing or operating any factory, or owning or controlling the use of any other building where more than five persons shall be employed at labor, shall provide suitable water-closet accommodations for the use of the persons employed, and shall keep the same in good sanitary condition.

SEC. 6. It shall be the duty of the inspector to enforce the provisions of this act by giving proper orders or notices to the persons or corporations owning, operating, or managing the factories or buildings inspected by him, and also to make complaint to the state's attorneys in the several counties, respectively, of all violations of this act.

SEC. 7. Any person, firm or corporation, being the owner, lessee, or occupant of any factory or building included within the provisions of this act, or owning or controlling the use of any room in such building, shall, for a violation of any provision of section three, four, or five hereof, forfeit to the use of the state not less than fifty nor more than five hundred dollars, and shall also be liable to any employe for all damages suffered by him by reason of such violation. It shall be the duty of the state's attorneys in the several counties to collect forfeitures under this act, but no suit shall be brought for any such violation, either in behalf of any person or the state, until four weeks after notice has been given by the inspector to such person, firm, or corporation of any changes necessary to be made to comply with the provisions of said sections, and not then if, in the meantime such changes have been made in accordance with such notification. Nothing herein shall be construed as limiting in any way the right of a per-

son injured to bring an action to recover damages for the same, as though this act had not been passed.

SEC. 8. The orders and notices given by the inspector under this act shall be written or printed, and signed by him officially, and may be served by himself or any proper officer or indifferent person, by leaving an attested copy thereof with or at the usual place of abode of the person upon whom service is to be made; and the notice, properly indorsed with the doings of the person or officer serving the same, shall be returned to the office of the town clerk of the town in which is located the factory, building, or business to which such notice appertains, where it shall be kept on file. Such notice, and copies thereof duly certified by the town clerk, shall be *prima facie* evidence that notice was given as therein appears. Notice to one member of a firm shall be notice to every member thereof, and notice to the president, secretary or treasurer of a corporation shall be notice to such corporation. The fees for serving such orders and notices, unless served by the inspector, shall be the same as for the service of process in civil actions, and shall be included in the necessary expenses of the inspector and paid by the state.

SEC. 9. It shall be the duty of the comptroller to provide suitable rooms in the capitol at Hartford for the use of the inspector, and to furnish him blank forms for the purpose of giving him notices and orders required by this act, and for annual reports to be made to the governor. The inspector shall keep, in books provided by the comptroller for that purpose, copies of all notices and orders given by him, and a record of inspections and examinations made, and upon the expiration of his term of office shall file his books of record with the secretary of state.

SEC. 10. The inspector may, from time to time, employ special agents to assist him in his inspections and examinations, who shall receive compensation for the time actually employed in such service only. The total amount expended under section ten of this act shall not exceed in any one year the sum of fifteen hundred dollars, which shall be paid by the state upon proper vouchers by the special agents, which shall be signed by the inspector.

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## MAINE.

### TO REGULATE THE HOURS OF LABOR AND THE EMPLOYMENT OF WOMEN AND CHILDREN.

SECTION 1. No female minor under eighteen years of age, no male minor under sixteen years of age, and no woman shall be employed in laboring in any manufacturing or mechanical establishment in this state more than ten hours in any one day, except when it is necessary to make repairs to prevent the interruption of the ordinary running of the machinery, or when a different apportionment of the hours of labor is made for the sole purpose of making a shorter day's work for one day of the week; and in no case shall the hours of labor exceed sixty in one week; and no male person sixteen years and over shall be so employed as above more than ten hours a day during minority, unless he voluntarily contracts to do so with the consent of his parents,



or one of them, if any, or guardian, and in such case he shall receive extra compensation for his services; provided, however, any female of eighteen years of age or over may lawfully contract for such labor for any number of hours in excess of ten hours per day, not exceeding six hours in any one week or sixty hours in any one year, receiving additional compensation therefor; but during her minority the consent of her parents, or one of them, or guardian, shall first be obtained.

SEC. 2. Every employer shall post in a conspicuous place in every room where such persons are employed a notice, printed in plain, large type, stating the number of hours' work required of them on each day of the week, the exact time for commencing work in the morning, stopping at noon for dinner, commencing after dinner, stopping at night; the form of such printed notice shall be furnished by the deputy commissioner of labor hereafter named, and shall be approved by the attorney-general; and the employment of any such person for a longer time in any day than that so stated shall be deemed a violation of section one, unless it appears that such employment is to make up for time lost on some previous day of the same week, in consequence of stopping of machinery upon which such person was employed or dependent for employment.

SEC. 3. Whoever, either for himself, or as superintendent, overseer, or agent of another, employs or has in his employment any person in violation of the provisions of section one, and every parent or guardian who permits any minor to be so employed, shall be punished by a fine of not less than twenty-five dollars nor more than fifty dollars for each offense. A certificate of the age of a minor made by him and by his parent or guardian at the time of his employment shall be conclusive evidence of his age in behalf of the hirer upon any prosecution for a violation of the provisions of section one. Whoever falsely makes and utters such a certificate with an intention to evade the provisions of this act shall be subject to a fine of one hundred dollars.

SEC. 4. It shall be lawful for any person, firm or corporation engaged in any manufacturing or mechanical business to contract with adult or minor employes to give one week's notice of intention on such employe's part to quit such employment, under a penalty of forfeiture of one week's wages. In such case the employer shall be required to give a like notice of intention to discharge the employe; and on failure shall pay to such employe a sum equal to one week's wages. No such forfeiture shall be enforced when the leaving or discharge of the employe is for a reasonable cause; provided, however, the enforcement of the penalty aforesaid shall not prevent either party from recovering damages for a breach of the contract of hire.

SEC. 5. No child under twelve years of age shall be employed in any manufacturing or mechanical establishment in this state. Whoever, either for himself, or as superintendent, overseer, or agent of another, employs or has in his employment any child in violation of the provisions of this section, and every parent or guardian who permits any child to be so employed, shall be punished by a fine of not less than twenty-five nor more than fifty dollars for each offense.

SEC. 6. No child under fifteen years of age shall be employed in any manufacturing or mechanical establishment of this state except during vacations of the public schools in the city or town in which he resides, unless during the year next preceding the time of such employment he has for at least sixteen weeks attended some public or private school, eight weeks of which shall be continuous; nor shall such employment continue unless such child in each and every year attends some public

or private school for at least sixteen weeks, and no child shall be so employed who does not present a certificate made under or by the direction of the school committee, superintendent of the public schools, or the teacher of a private school, that such child has so attended school; and it shall be the duty of such committee, superintendent, or teacher to furnish such a certificate in accordance with the fact, upon request and without charge; provided, that this section shall not take effect until January one, eighteen hundred and eighty-eight.

SEC. 7. Any parent or guardian who procures a child to be employed contrary to section six, and any corporation, owner, superintendent, or agent of the owner of such establishment violating the provisions of said section, shall forfeit the sum of one hundred dollars, one-half to the use of the county and one-half to the use of the city or town where the offense is committed. Money so recovered to the use of the city or town shall be added to its school money. It shall be the duties of the school committees and superintendent of public schools to inquire into violations of said section, and report the same to the county attorney, who shall prosecute therefor.

SEC. 8. Every owner, superintendent, or overseer of any such manufacturing or mechanical establishment shall require and keep on file a certificate of the age and place of birth of every child under sixteen years of age employed therein, so long as such child is so employed, which certificate shall also state in the case of a child under fifteen years of age the amount of his school attendance during the year next preceding such employment. Said certificate shall be signed by a member of the school committee of the place where such attendance has been had, or by some one authorized by such committee; and the form of said certificate shall be furnished by the state superintendent of schools, and shall be approved by the attorney-general. The deputy commissioner of labor hereinafter named, or either of his assistants may demand the names of children under sixteen years employed in such establishment, in the several cities and towns of the state, and may require that the certificates of age and school attendance prescribed in this section shall be produced for his inspection, and a failure to produce the same shall be *prima facie* evidence that the employment of such child is illegal.

SEC. 9. The governor, by and with the advice and consent of council, shall appoint a deputy commissioner of labor, at a salary of one thousand dollars a year, who shall hold office for two years, or until his successor is appointed, unless sooner removed. It shall be the duty of the deputy commissioner of labor to inquire into any violations of this act, and also to assist in the collection of statistics and other information which may be required for the use of the bureau of industrial and labor statistics; and said deputy commissioner shall, in addition to his salary provided by law, be allowed his reasonable expenses. Whenever the governor of this state shall be satisfied the deputy commissioner of labor cannot perform all the duties of his said office required by this section, in person, he shall, with the advice and consent of the council, appoint a sufficient number of assistant deputies to assist him in so doing. Said assistants shall hold their office for the term of two years, and act under the direction of said deputy commissioner of labor, and shall receive the sum of two dollars per day and reasonable expenses while actually engaged in duty. Said assistants may, at any time, be removed for cause by the governor. All bills for the expenses of the deputy commissioner of labor, and for the services and expenses of the such assistant deputies, shall be audited by the council. For the

purpose of inquiring into any violation of the provisions of this act, and enforcing the penalties thereof, such deputy commissioner and assistant may, at all reasonable times, enter any manufacturing or mechanical establishment and make investigation concerning such violations. Such investigation shall be conducted with as little interruption as possible to the prosecution of the business of such establishment. Whoever interferes with such deputy commissioner or his assistants in the performance of their duties as prescribed in this act this act shall be fined fifty dollars.

SEC. 10. Nothing in this act shall apply to any manufacturing establishment of business the materials and product of which are perishable, and require immediate labor thereon to prevent decay thereof or damage thereto.

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## RHODE ISLAND.

### STAIRWAYS, FIRE-ESCAPES, ETC.

SECTION 1. The town councils of towns and the city councils of cities, respectively, shall pass such ordinances and make all needful rules and regulations in reference to the construction and location of stairways, and the providing and putting up of fire-escapes upon buildings within the limits of their respective towns or cities, as they may deem to be necessary and proper for the protection of the persons and lives of persons frequenting or being in said buildings, and to provide for the punishment of the person or corporation who may violate such ordinances, rules or regulations, by fine not exceeding ten dollars per day for every day the said ordinances, rules or regulations may be violated.

SEC. 2. The town councils of towns and the city councils of cities, respectively, shall pass ordinances and adopt rules and regulations for the construction, location and operation of elevators and hoistways and the approaches thereto used for the carriage of persons or of merchandise within the limits of their respective towns or cities, and shall provide for the punishment of the persons committing a violation thereof by a fine not exceeding five dollars per day for each day such violation shall continue.

SEC. 3. The town councils of towns and the city councils of cities shall, respectively, designate such town or city officer as they may deem expedient to see that all ordinances, rules and regulations made under the provisions of this act are faithfully executed within the limits of their respective towns or cities, and may provide such compensation for such officer as they shall deem proper.





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THIRD ANNUAL CONVENTION  
OF  
NATIONAL ASSOCIATION  
OF  
FACTORY INSPECTORS  
OF  
NORTH AMERICA,  
HELD AT  
TRENTON, N. J., Aug. 6-9, 1889.

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BOSTON:  
WRIGHT & POTTER PRINTING COMPANY,  
18 POST OFFICE SQUARE.  
1889.

## FACTORY INSPECTORS.

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RUFUS R. WADE, <i>Chief</i> ,	. . . . .	Boston, Mass.
L. T. FELL, <i>Chief</i> ,	. . . . .	Orange, N. J.
WILLIAM Z. McDONALD, <i>Chief</i> ,	. . . . .	Columbus, Ohio.
JAMES CONNOLLY, <i>Chief</i> ,	. . . . .	Albany, N. Y.
JOHN FRANEY, <i>Assistant Chief</i> ,	. . . . .	Buffalo, N. Y.
HENRY CLAYMIER,	. . . . .	Milwaukee, Wis.
JAMES C. MOORE,	. . . . .	Janesville, Wis.
W. S. SIMMONS,	. . . . .	Connecticut.
L. R. CAMPBELL, <i>Deputy Com'r of Labor</i> ,	. . . . .	Rockland, Me.
JOSIAH B. BOWDITCH, <i>Com'r of Labor Statistics</i> ,	. . . . .	Providence, R. I.
JOHN H. DAVIS, <i>Chief Clerk</i> ,	. . . . .	Providence, R. I.

PRESERVATION MASTER  
AT HARVARD

## OFFICERS.

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RUFUS R. WADE, . . . .	President.
JOHN FRANEY, . . . .	First Vice-President.
WM. Z. McDONALD, . . . .	Second Vice-President.
ISAAC S. MULLEN, . . . .	Secretary-Treasurer.
W. S. SIMMONS, . . . .	Assistant Secretary.



## ORDER OF BUSINESS.

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Roll-call of Officers.

Reading of Minutes.

Reports of Committees.

Unfinished Business.

New Business.

Election of Officers.

## PROCEEDINGS.

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TRENTON, N. J., Aug. 7, 1889.

The third annual convention of the National Association of Factory Inspectors of North America convened in the Senate Chamber at 12 m., with President Rufus R. Wade, Chief Inspector of Massachusetts, in the chair.

Secretary Henry Dorn of Ohio being absent, Assistant Secretary L. R. Campbell of Maine assumed the duties of the office.

The first business being the calling of the roll of officers, the following were present : —

Rufus R. Wade, *President*.

L. T. Fell, *First Vice-President*.

John Franey, *Second Vice-President*.

L. R. Campbell, *Assistant Secretary*.

Absent : Henry Dorn, *Secretary and Treasurer*.

On motion of Inspector White of Massachusetts the reading of the minutes of the session of 1888, held in Boston, Mass., was dispensed with.

The roll was called and the following delegates answered to their names : —

MASSACHUSETTS. — R. R. Wade, John T. White, J. A. Moore, Isaac S. Mullen, W. S. Buxton, Frank H. Morton, J. L. Knight.

MAINE. — L. R. Campbell, *Chief*.

NEW JERSEY. — L. T. Fell, *Chief*; John D'Arcy, E. R. White, P. Callan, J. S. Weinthal, P. Coogan, Frank Sayre.

OHIO. — William Z. McDonald, *Chief*; John H. Ellis, James A. Armstrong, Evan H. Davis.

CONNECTICUT. — W. S. Simmons.

NEW YORK. — John Franey, *Assistant Chief*; John Jordan, Francis H. Coe, George H. McKay, Johnson Beers.

RHODE ISLAND and WISCONSIN delegates absent.

Chief Fell of New Jersey read a telegram from the Governor stating his inability to be present to welcome the delegates on account of important business.

President Rufus R. Wade delivered the following address: —

GENTLEMEN OF THE CONVENTION:—Conceding the wisdom of the adage, that "in union there is strength," and believing that, even in departments of special knowledge, all men know more than one man, we met in the city of Philadelphia two years ago and organized an association comprising the factory inspectors of those States whose legislation provided for the protection and elevation of their industrial population.

That initiatory session brought together men whose official duties were of the same general character, but whose methods of administration were, in the nature of the case, in many respects unlike. The value of that meeting consisted in the opportunity it gave for mutual acquaintance, for comparison of views, for free discussion of the industrial laws of the respective States represented, and in its being the occasion of the formation of a permanent association of factory inspectors.

It quickly settled one question, namely, that in no better way could we obtain a broad view of the functions of our vocation, and secure the lasting benefits of co-operation. Confined to his own territory, seeing only what transpires therein, running always in the grooves of official routine, an inspector was liable to hampering influences.

As we compared the legislation of our several States, bearing upon the work of factory inspection, as we listened to the statements and suggestions of our colleagues, as we noted the progress that had been made wherever these subjects had been fairly discussed and considered, the wisdom of the movement which brought us together became more manifest. And when our second convention was held in the city of Boston, a year ago, no member thereof doubted for a moment that the association had justified its existence in its deliberations and its actions, and that it had come to stay.

At that convention the scope of the discussions indicated how much

thought and purpose had been given to our work since the idea of organization had been fully embodied. Many valuable papers on the several branches of inspection had been read by factory inspectors, whose opinions and conclusions were based upon actual experience and extensive observation. Another important feature of that meeting was the enlargement of the jurisdiction of our association; so now we are assembled as a convention whose appellation is The National Association of Factory Inspectors of North America. And it is to be hoped that, as other States are added to the number of those which legislate for the protection of the industrial classes, their inspection officials will deem it an honor and a privilege to bring to our annual meetings their contributions of wisdom, and aid us with their suggestions and enthusiastic purpose. Let me cordially congratulate you, gentlemen, that we are met in our third annual convention under the most encouraging auspices.

We come together in a city whose historic memories shed lustre upon the annals of our country. When Washington and his little army of patriots traversed this region, not the wildest flight of imagination could have pictured the scene our eyes behold to-day. Arts and manufactures and industries, which have made Trenton a centre and source of business enterprise and prosperity, and brought together upon this spot thousands of happy homes, which have planted the school-house and the church and the various institutions of charity and learning for which this city is famous, all tend to show that the struggles and trials of our patriotic ancestry were the fruitful seed from which this bountiful and glorious harvest has sprung.

The State within whose borders we have assembled is noted for practical conservatism, and if it is wise to prove all things, it is equally wise to hold fast to that which is good. That, as I understand it, is Jersey conservatism. She makes haste slowly, but she gets there always.

Her laws in relation to the employment of children, her compulsory education law and general factory act, with the supplementary act in relation thereto, are models of wise legislation. Certainly no State has more diversified industries, ranging all the way from the cruder products to the finest specimens of art.

Her noble rivers, her fertile fields, are tributary to her numerous manufacturing centres, where, let us hope, labor and capital are harmoniously united in developing the resources of the State.

Our special mission here is to report progress in the important work entrusted to us, to gather up the lessons of individual experience and to formulate them into such action as may be deemed expedient and wise.

It may not be amiss for me to say that in my own State, Massachusetts, during the past year, we have paid especial attention to sanitation, as related to the proper ventilation of our public school buildings.

The most thorough investigation has been made, by competent inspectors and scientific experts, to ascertain whether the school-houses scattered all over our Commonwealth are in a proper sanitary condition, especially as to ventilation. Can anything bearing directly upon the comfort, health and life of our children be of greater importance?

A very considerable portion of their time must be spent in the school-room. Let an intelligent observer note the appearance of the children in an average school-room, after it has been occupied by them an hour or two. Coming from the outer air he instantly discovers that the close air of the school-room is loaded with carbonic acid gas, the impurities that have been thrown off by half a hundred persons, and that it is being drawn back into the lungs of the helpless victims and breathed over and over again, until languor settles upon them all, headache ensues, the seeds of disease are implanted, and the place becomes in some degree a pest house. The seductiveness of the evil is apparent from the fact that after a little time one becomes so accustomed to the stifling, vitiated atmosphere of such a school-room that he notices it less as he remains subjected to its influences.

It is a fact of common knowledge that a certain proportion of children of the school age, especially in our larger cities, come from homes where life must be lived, if at all, under most serious disadvantages. The narrow, dirty alley, the close, filthy surroundings within doors, the food poorly prepared and often inadequate in quantity, what chance of health and life have children thus reared? But if the school-room is bright, attractive and wholesome by reason of sunny and well-ventilated rooms, even children of the less favored class get only what they are fairly entitled to, and to that extent are compensated for the misery of their home life.

In one of those foul, ill-ventilated school-rooms let the obvious experiment be tried of opening all the windows for a few moments, and what a sudden transformation ensues. The animated countenances, the alert expression, testify more surely than words to the grievous wrong thus summarily remedied; and while such a method, of course, cannot be relied upon regularly, it points out the direction from which permanent relief must come. I do not wish to convey the impression that, in our Commonwealth, the evil alluded to is more common and glaring than elsewhere. It is not necessary to institute comparisons, and surely it would be unwise to overstate any wrong for the sake of effect. The facts are what we have to deal with, and the appropriate remedy. In Massachusetts we are less concerned to know the origin of good ideas and improved methods than to adopt them when, after due investigation, they seem to be worthy of it.

The story goes, that the poet Whittier once lent a volume of Plato to a neighbor, and when the book was returned, asked, "Well, friend, how

did thee like Plato?" "First rate," said the farmer, "I see he's got some of my ideas." Wherever the ideas originate, if they are good, we want them, and if our experience in using them is worth anything to others, we are always glad to pass along benefits received. Nothing aids more in the enforcement of laws such as those entrusted to us, than the general enlightenment through the newspapers which it is always possible for us to secure. An illustration occurs to me which I will state. We have a recent statute relating to ventilation of public buildings and school-houses, and also factories and workshops. In one or two instances there was a little friction, because the impartial enforcement of the law would, in certain instances, entail some expense which the local authorities desired to avoid. Possibly they did not like to admit the existence of such evils among them. At all events, when the last Legislature met, an effort was made to amend the law in effect, to provide for the constitution of a board of arbitration, to be chosen in each case as it arose, and to decide whether in that particular case the law should be enforced. It was a serious principle which was sought to be engrafted upon the statute. The press ventilated the subject thoroughly and the law remains unchanged. It is often said that you cannot make men moral by law, and that may be true, but if a man is disposed to be immoral, the law can make him very uncomfortable. And in respect to all legislation placed upon the statute books for the benefit of the industrial population, it is a very common and cheap form of criticism frequently heard, "That it interferes with individual rights." Men should labor as many hours a day and under just such conditions as they please. If they desire to send their wives and children into factories and workshops a dozen hours a day, it is their personal right to do so. Why should the State interfere? What right has it to control individual freedom in such respects?

But it is too late to raise such questions. The case has been brought to the tribunal of public opinion. The evidence has all been heard. The arguments have been made and the judgment has been given. It is recorded on the statutes of many States, and while under our republican form of government it cannot be said that such judgment is irreversible (for the people who make laws can repeal them), still no man in his senses expects a reversal of the solemn judgment of the people, made in their representative capacity, and embodied in their laws, framed after patient investigation and earnest discussion, and generally conceded to be necessary to the welfare of countless thousands within their borders. In the long run justice cannot be defeated by ingenious technicalities, and we know that the cry "individualism" has been made in more than one community to cover the perpetration of wrong acts.

It was the extreme assertion of that idea that generated the disturb-

ance in Chicago a few years ago, and that was ruthlessly stamped out, as it will be again whenever it assumes the form of active resistance to the laws of the land. The State is not an abstraction; what is it but the people expressing their purposes through a medium of their own creation? Collectively, and by the forms of law, the people have said that restrictions shall be placed upon human greed and thoughtlessness. The State has an interest in providing that its industrial classes shall be protected against avarice and neglect. It proposes that its women and children shall not be overworked and shall have opportunities of at least elementary education.

It forbids the sacrifice of its laboring and operative population, or any portion thereof, in the supposed interest of individuals or corporations.

We cannot weigh money against humanity. In this age of changes, when the earth upon which we dwell and the waters surrounding it appear to be fittest emblems of instability, there are some things that never change, and among these are the ideas of truth, right and justice. And when we get these ideas incorporated into our laws and our constitutions we may be pardoned if we take our stand thereupon and calmly await results.

Chief McDonald of Ohio read the following report of Secretary Dorn, and also resignation of Chief Dorn, as Secretary and Treasurer:—

#### REPORT OF THE SECRETARY.

*To the National Association of Factory Inspectors of North America.*

GENTLEMEN:—I have the honor to submit herewith my third annual report as Secretary. In it I have endeavored as briefly as possible to give you a comprehensive idea of the work performed during my term of office.

We have reasons for congratulations over the material advancement of our cause, and encouraged hopes for the future good that may result from continued efforts. The progress made since the existence of this association, only two years ago, is very important in many respects, but chiefly in favorable legislation secured for the protection of those who are compelled to labor daily in the workshops and factories of this great country.

At the time of the first National Convention of Factory Inspectors, which was held in the city of Philadelphia in June, 1887, five States—Massachusetts, New Jersey, Ohio, New York and Wisconsin—had established departments.

At the second National Convention, which was held in the city of Boston in August, 1888, it showed an increase of like departments in three more States, those of Connecticut, Maine, and Rhode Island; and since the adjournment of the last convention I am pleased to be able to state that two additional States — Pennsylvania and Illinois — have created offices of factory inspection.

This plainly shows that great good has been accomplished by the creation of our association, and the holding of conventions in different sections of the country.

The work required in forming this association and advancing it to its present standard, has been a very laborious one. Over two hundred letters have been received by your Secretary, and more than three times this number has been sent to the different States and the Province of Canada.

The arranging, preparing and printing of the proceedings of the first and second annual conventions have entailed much work on your Secretary.

The first report of proceedings of this body contained fifty-four pages, which were furnished to inspectors at twelve cents per copy.

The second report contained ninety-four pages, at a cost of sixteen cents per copy.

Now, gentlemen, in conclusion, permit me to say that my official duties as chief inspector of workshops and factories of Ohio ceased on the 29th of April last.

And, in severing my official connection with this body, it is with a deep feeling for the continued prosperity of this association, to which I have devoted so many hours of wakeful thought and untiring efforts.

In the past it has been a pleasure to meet with the officials of other States, and in commingling and exchanging thoughts I can truthfully say that I feel that all the departments have been benefited by so doing.

The many kind words spoken and friendly letters exchanged between the various inspectors and myself during the past few years, will ever remain dear to my memory.

In bidding a final adieu to the delegates present, I wish to say that wherever I may be, whatever duty I may be called upon to perform, my services will be in the future, as they were in the past, devoted to advancing the best interests and objects of the National Association of Factory Inspectors of North America.

Fraternally,

HENRY DORN,  
*Secretary and Treasurer.*



COLUMBUS, O., Aug. 5, 1889.

*National Association of Factory Inspectors, Trenton, N. J.*

GENTLEMEN: — It is with great regret and sorrow that I am compelled to decline to attend the third annual convention of the National Association of Factory Inspectors of North America.

Only a very short time ago, I believed it to be possible for me to be with you, but matters changed, and I therefore send in my resignation as secretary-treasurer.

Hoping that you may prosper in the future as you did in the past is the wish of one who has the welfare of your organization at heart.

Most respectfully yours,

HENRY DORN,

*Ex-Chief Inspector of Workshops and Factories of Ohio.*

On motion, the resignation was accepted.

On motion of Chief Franey of New York a committee of three was appointed to draft suitable resolutions thanking the late Secretary Dorn for his services to the association and community.

The president appointed the following the committee: Chief Franey of New York, Chief Fell of New Jersey and Inspector W. S. Buxton of Massachusetts.

Inspector White of Massachusetts suggested that any member intending to offer any important matter that it be done in writing.

Assistant Secretary L. R. Campbell of Maine tendered his resignation as secretary.

On motion of Chief Fell of New Jersey the resignation was accepted.

On motion of Chief Fell of New Jersey Inspector Isaac S. Mullen was elected temporary secretary of the Convention.

Chief McDonald of Ohio moved that the Convention procure the services of a stenographer. After some discussion the motion was withdrawn.

Chief Fell of New Jersey moved that the Convention adjourn until 2.30 P.M. Carried.

ISAAC S. MULLEN,  
*Secretary.*

TRENTON, N. J., Aug. 6, 1889.

An adjourned meeting of the annual session of Factory Inspectors assembled at 2.30 P.M.

President Rufus R. Wade in the chair.

Minutes of morning session read and approved.

Chief Fell suggested that any papers to be introduced to the Convention be read at this afternoon session. Also suggested that Massachusetts lead off in that direction.

President Wade called on Inspector Isaac S. Mullen of Massachusetts to read a paper on "Compulsory Education."

Inspector Mullen read the following paper:—

MR. PRESIDENT AND GENTLEMEN OF THE CONVENTION:—The compulsory education of children is a subject that requires much careful and serious consideration. Some ten years ago a statute was enacted in Massachusetts bearing upon the education of children. That it has been a great advantage to those for whom it was intended, there is not the least shadow of doubt, especially to the careful observer.

A law relating to a similar matter had been in vogue in England for a great number of years. The trial was to be made in this country, and Massachusetts took the first step in that direction, and at this present time every city and town in that State contains schools second to none throughout this vast country.

The elements of education are of such a character that it fits the children to become learned in the highest grades of learning, whereby they may become an honor to themselves and to their parents.

With education thus secured the child goes forth into the busy world capable of entering the factory, the workshop and the store, and in many cases capable of filling positions in mercantile establishments, endowed with knowledge and understanding, and with a determination to make a mark of a high standard somewhere in this broad land.

Education of the child should, to all intents and purposes, make them good and respectable citizens of our country. It enables them to become informed of the rights and privileges that should be enjoyed by the American citizen. It shows them the course to be pursued to know right from wrong. It is an incentive for them to take into consideration as to things that are moral or immoral.

History informs us that one of the first acts in the days of the colonies was the erection of school-houses for children. Twenty-two years afterwards a law was required to educate all children, to the end that they might have some knowledge of the then existing laws. It was

thought wise and expedient to have them thus educated that they might become conversant with the duties that might become incumbent upon them, and that, in the event of their holding any official position, that they would know something of the duties that might be imposed upon them.

Sometime during the year 1647, a statute was enacted in Massachusetts, that, where there were a certain number of families, that there should be maintained a grammar school for the purpose of preparing boys for Harvard College. The Pilgrim Fathers saw the feasibility of such action and the benefits that might accrue therefrom, and we have seen from the number of learned men that have gone forth from that college that it was a step in the right direction.

There are but very few States that have laws upon their statute books relating to compulsory education. It seems to me that in those States where industry through manufacturing interests is so prevalent, that there should be laws enacted looking to the education of children, to the end that they might become informed in the rudiments of the English language.

In this vast country of so many resources, with so many advantages, children should not be allowed to be brought up in ignorance. When they have been educated, the grandest and best interest of the nation will have been consummated. There will be less crimes committed; no longer will poverty stalk abroad in this land, because of the fact that education will be an incentive to the rising generations to do that which is honorable, right and just, and enable them to enter those fields of industry and of science which are the boast and pride of this country.

Society will become better by the education of the child, and the tendency will be that a high plane of usefulness will be attained and a longing desire for knowledge be uppermost in their minds.

When we take a glance backward and look at the ages that have passed, there are scenes of intellectual darkness which present themselves before us. We are told that the "active powers of a person will necessarily follow the dictates of his understanding." We are also informed that "amid the darkness which in ancient times so long overspread the world, some rays of intellectual light appeared in Palestine, in Egypt, and in the Greek and Roman empires, but its influence upon the nations around was extremely feeble. Bands of barbarians overran the western part of the Roman empire, at that time the principal seat of knowledge; and in their progress overturned and almost annihilated every monument of science and art which then existed. Useful knowledge was set at naught; every benevolent feeling and every moral principle was trampled under foot. So great was the ignorance prior to the reformation in Europe that persons of the most distinguished rank could neither read or write." "During this period," says one Dr.

Robertson, "the human mind, neglected, uncultivated and depressed, continued in the most profound ignorance."

Whatever comparisons there may be between the state of knowledge that exists in the present age and that of former ages, there is a great amount to be accomplished, until the younger body of our people become imbued with educational requirements. It seems to me that every lover of education for the young would use every endeavor to remove any obstacle which has a tendency to obstruct the advancement of useful knowledge, and to so direct the intellectual energies of the child to the high station they should hold in the scale of existence.

It has been a favorite maxim with all tyrants that "the people must be kept in ignorance." Under such there is a tendency of the mind to sink into a sort of apathy. If there is any genius it is subdued; education is neglected, ignorance becomes honorable. But under our government, with its thousands of school-houses and free institutions of learning, a different nature of things exists. Hence, from the nature of the government, we can determine the degree somewhat of the intelligence of the people. For in proportion to their liberty we can judge of the knowledge which they possess. If the spirit of liberty is crushed or shackled, the energies of the human mind will never be exerted with vigor in the requirements of education.

Compulsory education would have a tendency to increase in the minds of the children a great many pleasures and enjoyments. It would promote in a large degree a progress towards the mechanical arts. Also to add to the comfort of general society, and a way prepared for new inventions and discoveries; morality to a great extent would be advanced, and a general cultivation of the intellect, and an extensive longing for rational information would be desired that would be productive of the most beneficial results.

It is of great importance that the mental faculties be cultivated and the details of education receive that consideration that its importance demands. While almost everything else is attempted to be adjusted the improvement of the mind in the direction of education seems to be somewhat neglected.

The intellectual improvement of the young mind, the arrangement and discipline of the method and manner of their education, is a responsibility that cannot be overlooked. If this important object is to be secured we must be aroused from our lethargy and engage with renewed zeal in the work of instruction of our rising young generation.

There are many privileges that we boast of in our favored land, but the most valuable privilege is that of education. But we do not forget that there are many of the young generation who receive an education that rise up in life in vice, not being under the tuition of responsible parents. It is, therefore, essentially requisite that the utmost care be used

on the proper direction of the young mind, and, if possible, draw them away from the devious paths of vice and show them the road to wisdom.

The object of education ought to be to convey to the young mind substantial knowledge and to lead them into a channel that will tend to promote comfort to themselves, make them useful in society, and to prepare their minds for the various employments that are before them.

In a convention held in Massachusetts in 1821, Daniel Webster, in speaking on the question of "Property being assessed for the support of primary schools," said, "We regard it as a wise and liberal system of police, by which property and life and the peace of society is secured. We hope to excite a feeling of respectability and a sense of character, enlarging the capacities and increasing the sphere of intellectual enjoyment. We seek to purify the atmosphere, to keep good sentiments uppermost. We do not expect all men to be philosophers or statesmen. We rejoice that every man in this community has occasion to furnish his children instruction and the elements of knowledge; that his country stands pledged by the faith which she has plighted to all her citizens to protect his children from ignorance, barbarity and vice."

Such sentiments are grand and the ideas therein embodied should be practised in every State of this Union.

In fine, education should improve the moral powers of the young. It should also improve their tempers and affections, and to a great degree promote happiness in their own behalf as well as that of others. Their active powers should be trained in order to give force and stability in the improvement of knowledge and wisdom, and that they may be prepared to enter on the scenes of active life, and also in the various vocations in civil society.

It is, therefore, evident that the education of the young is of the highest importance, and, if the great end of education be kept in view, it will be an advantage to them in after life. If, therefore, the intellectual improvement of the mind of the young be an object at all desirable, it is to be hoped that an intelligent public will duly appreciate its importance, and encourage every law which has a tendency to educate the young mind.

It is to be hoped that a new spirit will animate the law-makers of such States as have no laws bearing upon the education of children, and that the great body of people will see the utility of so grand an object. And we may also hope, that the means within the power of our various States shall be employed with energy and judgment, and that we may expect ere long to behold a generation rising up in intelligence and education superior to all the generations that have gone before it.

Respectfully submitted,

ISAAC S. MULLEN,

*Inspector of Factories and Public Buildings, State of Massachusetts.*

Inspector W. S. Buxton of Massachusetts was next called upon to read a paper on the proper construction of buildings. The following paper was then read : —

The proper construction of buildings is a subject of great importance, and to treat it properly would require far more time and space than it is possible to give it here. I have therefore only attempted to make a few suggestions which may direct attention to some of the principal features of the subject.

One of our eminent men of letters wrote some time ago that America was not a pleasant place to live in, as we had not got through with getting ready to live ; that the nation was on the march from the Atlantic to the Pacific and pitched tents instead of building houses.

This was a graphic description of the architecture that characterized the country at that time, and also gave a just explanation for the cause of it. The nation has reached the Pacific coast, and we are glad to believe that some progress has been made in getting ready to live. But the preparatory work is yet far from being completed, and throughout the country men are busy tearing down and removing small temporary structures to make room for more spacious substantial buildings.

The present time may justly be styled the transitory period with regard to the construction of buildings, both public and private. The marvelous rapidity with which business and population have increased has necessitated the immediate building of larger quarters, while the higher value of land has caused men to discard buildings one or two stories in height for those which topple towards the heavens, from two to ten stories in height, often from very inadequate foundations.

The many new conditions entering into the massing together of multitudes of human beings in buildings varying from four to ten stories in height are so imperfectly understood, that a large proportion of the buildings newly constructed and now in process of erection are very illy adapted for the purposes for which they were designed.

Of course in a country where intelligence is the rule rather than the exception, much of this want of knowledge is wilful ignorance. At the same time, so many external causes aid and abet the ignorance that we cannot consider the subject in a just and impartial manner without at least glancing at a few of them.

The country is young, it is growing with unprecedented rapidity, circumstances that remain stationary in the old countries across the sea for a generation, change here in the twinkling of an eye. Business firms newly settled in large and commodious quarters suddenly find themselves cramped for room ; absorbed in combating the fierce competition which assails them, they give no thought to the safety or stabil-

ity of buildings, but eagerly seize upon the most available quarters which will enable them to prosecute their business without interruption. Thus in all our cities we find large firms doing a profitable business in buildings which only the kindly interposition of Providence prevents from becoming a fire trap in which the inmates are consumed by fire, a human sacrifice to man's haste to get rich.

Again, these constantly changing conditions, although the result of increasing wealth, have engendered in the minds of the people a tendency to ignore permanency and stability in all building enterprises. It has become the habit of the nation to build simply for the present without thought or provision for the future, as they expect to outgrow them presently. Strict truth requires us to state that there are exceptions to this rule, but the exceptions, notable though they be, but *prove* the rule, and this habit has become so fixed in the past two hundred years that it will require more than one generation of time to wholly eradicate it.

The most formidable obstacle in the accomplishment of this is found in that trait in human nature which makes men slow to believe what they don't want to believe. It is curious to note this peculiarity in even the best of men. It requires strong proof to convince them of a fact which necessitates their expending hundreds of dollars for the security of buildings they have occupied for years, perhaps, without accident. It is this tendency in even sincere and Christianized human nature, to be blind to everything save what is for their interest to see, which makes the work of the inspector difficult both for himself and the community.

With all the power and majesty of the law behind him, it is sometimes hard to persuade men to so construct or change buildings that they will be even tolerably safe from accident; and one of the most important duties which devolves upon the inspector of this generation is to do what he can to educate and enlighten the public mind in this direction. A hard and thankless task, which will bring no reward save the consciousness of duty well performed.

Nevertheless it is a preliminary work which must be faithfully done before we can secure a thoroughness of construction that will reflect credit upon the nation and secure safety to the people. Thoroughly convince public opinion that it is for the benefit of their pocket-books to build strong and securely and the work is more than half accomplished.

And I contend that it is a self-evident truth which all intelligent men can be made to see for themselves, that it is the best economy to build solidly, substantially, of the very best materials, and that it pays to give time, thought and money to lay the foundations of buildings broad, deep and strong.

While it is undoubtedly true that appeals to the pecuniary interest

and the supremacy of law are often necessary, I am glad to state for the credit of humanity that it is not universally so by any means. My own experience proves that many men and women in all communities, being shown the reasonableness and justice of the matter, are willing and even eager to do all in their power for the safety and happiness of the inmates of buildings owned by them, going far beyond the requirements of the law, taking no thought for the cost, and so manifestly grateful to the inspector for directing their attention to the matter, that the pleasure they impart more than compensates for the disagreeable part of the work; and I firmly believe in appealing to the better attributes of humanity, and that we should make haste slowly in resorting to law and coercion. The laws should be more stringent in some directions than they are now, even in Massachusetts, but an appeal to them should be the last resort of the inspector.

A long step in the right direction was taken when the Legislature of Massachusetts enacted a law in 1888 requiring plans of certain classes of buildings to be submitted to the inspector before erection. This is beginning a reform where it should begin,—at the foundation. It is far easier and a wiser economy to provide against danger and accident before the building is commenced, than afterwards. A poorly constructed building in chronic need of repair and covered all over with fire escapes, costs more money and is a very poor substitute for a properly erected building constructed of fire-proof materials.

The great loss of life by fire has given ample proof to even the most thoughtless, that all buildings above two stories in height should be substantially constructed of fire-proof material. Particular care should be given to hallways, stairways and elevator wells, as carelessness in these matters would convert a structure, otherwise well built, into a furnace in which a fire once started would spread with fearful rapidity. They should be constructed, as far as may be, of incombustible material, the stair rail and baluster of iron, the treads of cast iron, properly checked to prevent slipping, or covered with rubber. In no case should there be closets under the stairs, as experience has shown they are apt to be used for the storage of combustible rubbish and become a source of danger.

The partitions surrounding stairways should be of brick or terra cotta lumber, the floor of tile; and the ceilings, lathed with wire lath, would, if properly constructed, make a handsome and, comparatively speaking, a fire-proof hallway.

All elevator wells should be of brick or some other incombustible material, with the top of well extending above the roof six or eight feet, with suitably constructed doors or windows on top that would be opened, in case of fire, by the heat, which can easily be accomplished.

In all buildings of either brick or wood, the space between the stud-



dings or furring and the outside walls, and all partitions that do not set on solid plates, and all channels or pockets for steam, gas or water pipes, form numerous flues through which fire and smoke will spread throughout a building with incredible rapidity. Thus, the outside walls, when furred, should have the space between the furrings, on each story, filled with mortar to the height of eight inches from the lining floor. In wooden buildings the space should be filled with brick. All cross partitions should be made smoke-tight at the bottom with brick and mortar, and all lath and plastering should extend down to the lining floor; also the space between the joists on top of the partitions and the lining floor above should be filled with brick, properly laid, and left smoke-tight.

All chimneys should be plastered on the outside from cellar to roof to make sure that all imperfect mason work is made tight. All channels and pockets for gas, water, steam, soil and hot-air pipes should be made smoke-tight at each floor.

Buildings to be used for school purposes should, under no circumstances, be more than two stories in height, and should be so constructed as to make it impossible for any one to lose their life from fire or smoke. There should be two stairways located in a brick tower, one on each side of the building, entirely separated from each other and so connected with the building that either would be accessible from each of the rooms. These stairways should in no way be connected with the basement, as the heating apparatus is usually placed here, and, in case of fire, smoke would quickly find its way into the hallways.

All walls and partitions should be of brick or stone, the outside walls laid with an air space of two inches or more, properly ventilated. The inside of the walls surrounding the stairways should be laid with face brick, or well-selected common brick, without plastering. All other walls and partitions plastered directly upon the brick work, thus avoiding all flues for the passage of fire and smoke in case of accident.

The floors should be supported by two channel iron beams bolted together with a strip of wood between to fasten the flooring to. These beams placed from six to eight feet apart on centres, as the case may require, and overlaid with three-inch plank, tongued and grooved; these covered with asbestos paper and deafened with one inch of mortar on the paper, and a top floor of seven-eighths inch hard wood laid over all, and the ceiling covered with No. 26 corrugated iron of any pattern desired.

School buildings constructed in this manner, with good ventilation, would be safe and suitable structures for the purposes for which they are intended. While the first cost would perhaps be greater, it would in the end prove a wise economy from their greater permanency, although the question of dollars and cents should not be made too prominent in the matter of constructing school-houses.

Buildings erected with less care for avoiding disaster than these few hints suggest, should not be permitted in our large cities and towns. When structures, built at least as substantially, will replace the frail buildings which now disgrace the country, is only a question of time, for public opinion will not always tolerate a style of building which reflects discreditably upon the intelligence and humanity of the people.

Chief Franey of New York asked in regard to plans of buildings in Massachusetts. Chief Wade of that State gave the necessary information.

Inspector White of Massachusetts was also called upon to read a paper on "Sanitation," which reading was deferred until later in the session.

President Wade hoped that the various papers would be commented on and discussed by the members of the Convention.

Chief Fell of New Jersey stated that he fully endorsed the two papers which had been previously read. The one on "Compulsory Education" required especial attention, as that was one of the important matters in which the State of New Jersey was deeply interested; it was timely and in keeping with the sentiments as enounced in the compulsory laws of New Jersey. In the "Proper Construction of Buildings" he was also very much interested, and the paper read by Mr. Buxton was one that could not be criticised. He said that he hoped that more would be said upon the subject by the members of the Convention.

Inspector Campbell of Maine spoke on the matter of compulsory education, and hoped that the law would be enforced in every State as far as possible, and also that schools for manual and industrial training would be introduced in every State, and that laws would be passed in relation thereto.

Inspector Knight of Massachusetts made some very interesting remarks on the employment and education of children, especially in Massachusetts, and the law bearing upon the same.

Chief Fell of New Jersey explained section 6 of the law of New Jersey in regard to truant officers and how some were appointed. In answer to a question by Chief Franey of New York, in regard to what was done where there were no police officers, he was informed by Inspector Fell that school boards appointed constables to act as truant officers.

Inspector White of Massachusetts spoke in regard to the education of and employment of children, was in favor of compulsory education and thought that stringent laws should be enacted and put in force bearing upon the same. Spoke also in regard to Inspector Buxton's paper on "Construction of Buildings;" also in relation to plans of all buildings being submitted to the Inspector of Massachusetts for approval; how well it had worked, and the benefits resulting therefrom.

Inspector Coe of New York spoke on the compulsory education of children in that State. Though the law was somewhat of a dead letter, yet the factory law in regard to children had done much good, and had been of great benefit; and also that a majority of the best thinking people of the State, and also the governor, were in favor of such a law.

Inspector McKay of New York corroborated the statements made by Inspector Coe. Had known of cases where Italian children had been employed in candy establishments and other places who could not read and write the English language.

Inspector Jordan of New York said that the city of Brooklyn was far ahead of any city in the State in regard to seeing to the education of the children, and that truant officers were doing their duty and looking after children.

Inspector Fell of New York said that he had observed that the foreign children when they came here were farther advanced than the native born.

Inspector Franey of New York thought that there should be a truant school where children should be placed that would not attend school, and that they should not be sent to public reformatories.

Chief McDonald of Ohio thought that the remarks of Chief Franey of New York were timely, and he coincided with him. If sent to a truant school the influences over the child would be better than being in a reformatory. Inspector McDonald cited a case which had happened in Ohio. He was in favor of a law the same as New Jersey had, and hoped that Ohio and other States would see that good laws were enacted bearing upon the education of children.

Inspector Davis of Ohio made some interesting remarks upon the matter under discussion, and stated that a law had passed in that State which would be of great benefit, especially in regard to compulsory education. He would also like to see a committee appointed to suggest what kind of laws would be beneficial to labor, etc. ; also said that laboring men had actually prevented the enactment of a law prohibiting children from being employed under fourteen years ; but such a law would soon be passed.

Inspector Franey of New York said he was astonished that any set of laboring men would do such a thing as to prevent the passage of any good law.

Chief McDonald of Ohio said that there were not enough children in Ohio at the age of twelve to put to work, and other States filled Ohio with children under twelve, who were employed especially in glass works.

Inspector D'Arcy of New Jersey said that his State was doing very well in the matter of employment and education, and that there were plenty of children in New Jersey that could be found to be employed at the age which the law called for.

Inspector Buxton of Massachusetts made some interesting and well-timed remarks and cited some facts relating to the education and employment of children.

Chief McDonald of Ohio read section 10 of the Ohio law, which was in keeping with the remarks of Inspector Buxton.

President Wade introduced Delegate Simmons of Con-

necticut, who briefly addressed the Convention and sanctioned all that he had heard said by the Inspectors.

Chief Fell of New Jersey moved that when the Convention adjourn it meet at 8 o'clock. On stating the reason, the motion was carried.

President Wade suggested that a committee be appointed to draft resolutions on the business of the Convention.

Chief Fell of New Jersey informed the Convention that New Jersey would present two papers at the evening session.

Inspector Campbell moved that a committee be appointed, one from each State, to prepare a series of resolutions.

On motion, adjourned.

ISAAC S. MULLEN,  
*Secretary.*

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#### EVENING SESSION.

TRENTON, N. J., Aug. 6, 1889.

Evening session met at 8 o'clock P.M., President Wade in the chair. Minutes of afternoon session dispensed with.

The President called upon Inspector Moore of Massachusetts to read the following paper on fire-escapes : —

MR. PRESIDENT AND GENTLEMEN OF THE CONVENTION :—Whenever a fire occurs by which lives are lost or some person is maimed for life, people invariably ask, "Why was such an accident allowed to occur?" and some one is at once blamed and, either justly or unjustly, brought before the bar of public opinion for censure. In some cases, unfortunately, there is just cause for complaint, because the proper means have not been provided by which such accidents could have been prevented, or at least adequate means of escape provided. The desire to build as cheaply as possible, to obtain as much room for business purposes as practicable, regardless of ample stairway entrance and exit for the stories above the street floor, the exposure of stairways to fire from various causes and consequent danger of cutting off the inmates of the upper stories in case of fire — all these are inexcusable. They are a menace to human safety and deserve the cognizance of law as much as do the threats of the ruffian against the life of an individual.

The law should protect the lives of people by enforcing proper construction in theatres, halls, hotels, factories and workshops as much and as rigidly as it aims to do in other ways, and should provide penalties for those who erect unsafe buildings in which life is lost as severe as in cases of manslaughter at least. That such death-traps do exist is unfortunately a fact. Not only are hotels dangerous, but factories and workshops, halls and theatres are so placed and reached, that, in case of fire, the only means of exit would be blocked and there would invariably be more or less loss of life. As to halls and theatres, they should be constructed so that outside fire-escapes would not be needed, but ample facilities provided such as are used in emptying the house after a performance. If practicable, a broad and gradually descending stairway, with steps thirteen by six and a half inches, strongly railed on either side, should be constructed on the end of the hall opposite the stage, with similar ones on each side, and also the same for the galleries; the side entrance to be placed, if practicable, more than half way forward towards the stage, that in case of a hurried exit or panic the audience may divide and not all seek one means of exit.

These ways of exit should be plainly indicated by the word "Exit" conspicuously painted over the door, and should be used as the ordinary means of emptying the building, that the audience may become familiar with them. These stairways should be enclosed in fire-proof walls and no wood used in their construction, and every inlet of communication should be guarded by fire-proof doors. A fire-proof proscenium wall should be built, with the opening covered by a fire-resisting curtain of asbestos that can in case of fire be at once lowered from either the stage, fly-floor or auditorium, and at least two fire-proof stairways or doors lead from the stage. There should also be ample means of escape provided for the men on the fly-floor and also from the dressing-rooms. A large number of small exits do not seem desirable, as the tendency is to confuse the audience and cause them to rush towards the entrance which they generally use. The same rule may be applied to factories and workshops. Instead of having fire-escapes placed on the outside of the building, down which in case of fire females would find great difficulty in going, there should be constructed fire-proof stairways with fire-resisting doors — wood covered with tin — leading from each story and capable of resisting for a considerable time a fierce fire on the inside; these stairways to be, if practicable, at the opposite ends of the building, and, for a long building, one additional as a tower stairway in the centre of the front side of the building.

The practice of building one stairway in the centre of the building, reaching from the lower to the upper floor, with small entry or landing at each floor, and, as is often the case, closets under the stairs, which are made the place of storage for combustible and inflammable substances,

such as naphtha, oil, cement for rubber, alcohol, lamps and waste, and perhaps with a gas-jet close to the wall, cannot be to strongly condemned. If a fire should originate in such a place what would be the chance of the occupants of the upper stories to escape? If it caught in the lower part, the smoke and flame would run upwards as in a flue, and, before the inmates were aware of their danger, they would be cut off from escape by that passage and would find their rooms invaded by the smoke and fire, and their only means of escape would be by the windows, which probably would not be provided with fire-escapes, and they would have only the chances of remaining and being suffocated or burned to death or being killed or maimed by jumping to the ground below. The construction of elevators without fire-proof walls and fire-proof doors, often adds to the great danger already existing and furnishes a flue to carry the flames from the basement to the top with great rapidity.

If one central stairway must be built, it should be enclosed by fire-proof walls, and the stairs of iron with no closets or places in which combustible material may be placed, and the doors at each story should be protected by metal and no elevator openings allowed in this stairway or on the landings

Owners will often object to this construction on account of the cost and the loss of valuable room when more than one stairway is constructed; but this should not be allowed any weight when the danger to human life is considered.

Hotels and lodging-houses are often most difficult things to deal with. Their stairways and main entrances cannot from the very nature of things be always protected by fire-proof construction. Their planning and construction are often so faulty, when viewed from a standpoint of safety to the guests or occupants, that it is often very hard to tell what to do with them, and some are so arranged that it would be next to impossible to make them safe without surrounding the whole building with fire-escapes, and very often even that cannot be done. In all new buildings of this class the corridors should be made to run to the outer walls of the building with a stairway at each end. Often you will find the corridors terminate in one or more rooms at either end, it being the design to utilize room rather than to provide for the safety of the occupants. If stairways are not provided at each end of the corridor, there should be a substantial railed iron balcony with railed iron stairs leading to the next balcony under each window in the end of the corridor. There should be placed in each room on every corridor a plan of the same, with printed directions of how to proceed in case of fire; where the fire escapes are located, how to reach and descend them, together with suggestions as to the necessity of keeping a cool head, when the means of escape are well assured. No corridor should be provided with only one means of escape; there should be two or more—the more the better.

This system will cost money, but it can be applied to many of the hotels now in use. This will not be done voluntarily by the owners, but must be compelled by law. There should also be provided on each story a large gong operated by electricity, and with several switches on each story of a large building, by means of which every gong may be rung from any story; and, in many cases, fire-resisting doors may be put in the corridors or at the head and foot of the stairs,—these doors to be ordinarily held open by a catch, which will be released by electricity when the gongs are struck and be shut by a strong spring.

Stand-pipes, with hose attached and sufficient to reach every part of the story on which placed, or some portable fire extinguisher, or even water pails kept constantly filled, should be provided on each story. Many of the so-called hand fire-grenades have been found after a few months to be practically useless when wanted in case of fire. In buildings where no watchmen are employed, a system of improved thermostats connecting with the gongs may be employed to good advantage. In many rooms it will be found impracticable to provide means of escape by either corridor or balconies and stairs, and the danger to occupants may be greatly lessened by the use of some portable fire-escape or rope.

The rope fire-escapes known as Small's (manufactured at Nashua, N. H.), and the Lee (manufactured at Poughkeepsie, N. Y.), are by far the most practical and cheapest portable devices that have been approved by the Massachusetts inspectors. While a simple rope may occasionally be of some use to an athlete, it cannot be depended upon as of much service to the ordinary guest in a hotel; and, as far as women and children are concerned, is practically of very little value.

Red lights should be kept burning during the night at the head and foot of the several stairways, to guide the guests who may be confused on being suddenly awakened by the cry of fire and would be likely to wander about in search of a stairway, if there is nothing to guide them, until means of escape that had been provided had been cut off and they suffocated by the smoke, which so often overcomes persons before the fire reaches them.

In buildings used as school-houses, too much care cannot be taken to provide good fire-proof stairways so far separated that it would be impossible for all to be obstructed by fire or smoke before the pupils could leave the building. Outside fire-escapes should not be constructed on school-houses; but, if additional egress is required, good fire-proof outside covered stairways or towers should be built, and in any case upright ladders should not be tolerated on such buildings. It is enough to make one shudder to think of requiring school children to descend from the third or fourth story on a fire-escape of any kind; especially if in a stormy day in winter and with the fire-escapes covered with ice or snow. Especially if there should be a panic among



the scholars the results would be too horrible to contemplate. I have seen upright ladders upon school-houses, where the rounds were fifteen and more inches apart, and on these small children were expected to descend from the third and fourth stories in case of fire. The teachers should frequently exercise the pupils in fire drill, that in case of necessity they may leave the building quickly and a panic be avoided. This would be time well spent.

Stairways already built may be made much safer by putting in under the treads cut-offs or fire-stops of brick and mortar, or wire lathing covered with gauged mortar; also by putting the same in the surrounding walls between the studding.

In many buildings separated by walls running from the cellar to or through the roof, good means of escape may be provided by uniting a window on each side of the wall by a railed balcony, which will allow the occupants of either side to pass around the wall and descend on the other side in safety.

Frequently buildings separated by a passage way or vacant space may be connected by a railed bridge from the window of one building to the window of another, thereby providing, at a reasonable expense, means of escape for the occupants of either building. A means of escape may be provided from the upper floors of buildings in blocks with flat roofs by putting stairs to the roof, which will allow those on the upper story to ascend to the roof and descend through the scuttle or door in the roof of another building.

The practice of connecting the balconies on the different stories of a building by means of upright ladders is a very bad one, as women or children having to descend these ladders are in great danger of becoming dizzy, especially on a high building, and losing their hold upon the ladder; or of having their hands trod upon by others who are coming down above them, and thus causing them to fall, perhaps carrying with them others below who would be struck by them.

Too wide stairs on fire-escapes are objectionable unless there is a dividing hand-rail or rails. Besides adding to the strain upon the walls of the building, more than two persons abreast attempting to descend a fire-escape are liable to crowd each other or those in the centre, and to become wedged; or, having no rail to hold on to, are likely to trip and fall on others below, in their anxiety to quickly reach the ground. Whenever practicable the stairs of a fire-escape should extend to the ground and not be left, as in many cases, at the second story, with no means of reaching the ground except the hazardous one of jumping and trusting to those below to catch them. Where balconies are on the front of a building, and it is not practicable to extend the stairs from the second story to the ground on account of obstructing the sidewalk, a folding ladder may be used to advantage, as this when closed up close

to the building will not be of any more, if as much, obstruction on the sidewalk as a common water conductor, and can be arranged to open either from the ground or the second story, or both. In some cases it is desirable to have stairs descend from the second story over a sidewalk or passage way. This can easily be done by hinging the lower stairs and using a counterweight, which will ordinarily keep the stairs suspended high enough not to be an obstruction, but when one or more persons step upon the hinged stairs they will descend to the ground.

Many fire-escape builders, especially on brick buildings, simply put the fastenings of the brackets to support the balcony, into the wall a few inches and claim they are wedged in or are secured by cement. This practice should be condemned by the inspectors, and the builders be required to carry the supports through the wall and secure them by wide washers and nuts on the inside. If put on by the first method it is not practicable for the inspector to tell whether they are properly fastened or not; but in the latter case it will be much easier to see if the work is done right. The substituting of iron bars set edgeways and separated by thimbles, or heavy wire gratings in the place of wood in the flooring of balconies, has the advantage of durability and also facilitates the removal of snow and ice; by using the bars edgeways in the steps the danger of slipping is in a great measure overcome. Return balconies are much safer than a long run of stairs with small landings at each story, as there is not so much danger of the people above forcing those below and causing a fall or panic. Neither are women or children as likely to become dizzy as when looking down a long run of stairs.

Chapter 316 of the Acts of 1888 of the Massachusetts Legislature, requiring plans of buildings to be submitted to the inspectors before the buildings are constructed, is already having a good effect, and will result in the erection of a much better class of buildings so far as the safety of human life is concerned. Architects are learning the necessity of providing in the first place ways of egress that will be acceptable to the inspectors and thereby avoid having to make changes in the buildings while in process of construction, or after completion; and instead of as heretofore depending upon outside fire-escapes, good and sufficient stairways made fire-resisting will be provided. Considerable expense is often saved when the plans are filed with the inspectors before the building is commenced.

Inspector Buxton of Massachusetts was called upon to express his views upon the subject matter as read by Inspector Moore relating to fire-escapes, and gave his experience in regard to the same in buildings in his district in Massa-

chusetts; that he had made specifications in regard to the matter, and that they had been indorsed by architects, with but few exceptions. He also gave an interesting account of the manner in which buildings should be made fire proof.

Chief McDonald of Ohio said that he was pleased with Inspector Moore's paper on fire-escapes, and that there were some good suggestions contained therein. He also stated that there were several kinds of escapes used in Ohio. He had drawn up specifications of a fire-escape which was used in his State, and in connection therewith read them to the Convention and desired criticism on the same. The specifications were submitted and received favorable comment.

President Wade introduced the Hon. E. O. Chipman, Superintendent of Public Instruction of New Jersey, who addressed the Convention on the subject of education. He said that he was proud to find himself among friends and was glad to be present; also, that New Jersey was very much interested in trying to improve the sanitary condition and the ventilation of school-houses, and that education has always been too narrowly spoken of. Education is the standard above all other things. The labor problem must be solved on the basis of our common schools. Education must settle all things. The foundation of our government rests upon education. Manual and industrial training should be given children. Compulsory education is one of the laws of New Jersey, and every effort is being made in the enforcement of the same. His remarks were closed with an eloquent appeal to the members of the Convention to see that every law was enforced coming under their supervision which had a bearing on education or other matters in which they were interested.

Inspector White of Massachusetts was called upon to make some remarks in regard to buildings in which fires had taken place coming under his observation. During his remarks he spoke in relation to the construction of buildings and how he thought that they could be made fire proof.

Chief Franey of New York also spoke upon the subject and advanced some interesting ideas.

Inspector D'Arcy of New Jersey expressed views of much importance upon the same question.

Chief McDonald of Ohio briefly alluded to the matter, also Inspector Ellis of Ohio, and gave some ideas of a beneficial character.

President Wade appointed the following-named delegates as a committee on resolutions: Campbell of Maine, Franey of New York, Davis of Ohio, Simmons of Connecticut and White of New Jersey.

Chief McDonald of Ohio gave notice that he extended an invitation to the Convention to hold its next session at Columbus, Ohio.

On motion, Convention adjourned until 9 A.M., August 7

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TRENTON, N. J., Aug. 7, 1889.

Second day's session of the Convention met at 9.30 A.M. On account of the absence of President Wade and First Vice-President Fell, the Convention was called to order by Second Vice-President Chief Franey of New York.

On motion of Inspector Ellis of Ohio the reading of the minutes was dispensed with.

Inspector White of New Jersey presented to the Convention for their inspection a set-screw which he stated was used to some extent in his State.

Chief McDonald of Ohio spoke upon the utility of the screw, and that in Ohio a similar screw was used he thought much better, but the screw presented was a good one for light work; also referred to the stopping of machinery in case of accidents, and the appliances for doing the same.

Inspector Moore of Massachusetts related some facts in regard to the stopping of machinery and had seen an electric appliance for that purpose.

Inspector Buxton of Massachusetts said that it was of paramount interest to have some way and manner for the stopping of any machinery and thought that electricity was the best.

Inspector Armstrong of Ohio said that machinery in some places in that State was stopped by the sound of a gong very quickly.

Inspector Buxton of Massachusetts asked if any of the inspectors had given any attention to the guarding of gearing of any kind.

Chief McDonald of Ohio said that in Ohio gearing of most every kind was guarded and protected, but some accidents had happened; two or three fatal. In his opinion all gearing should receive careful and proper attention.

Inspector Coe of New York spoke on the feasibility of protecting gearing.

Inspector Buxton of Massachusetts asked if any Inspectors had done anything in regard to paper machines or worsted machines.

Chief McDonald of Ohio thought that such machines should be guarded.

Inspector Buxton of Massachusetts remarked that accidents would happen as long as machinery was used.

Inspector Ellis of Ohio spoke about printing presses; that certain parts of said presses should be guarded. He had known of accidents from such a machine.

Chief McDonald of Ohio thought that electric belts should be guarded.

Inspector White of New Jersey spoke of the methods used in glass making; knew of several accidents which had occurred in the manufacture of that article.

Chief McDonald of Ohio said that in Ohio the old methods were used in glass making; had not heard of any accidents occurring in Ohio.

President Wade invited the Hon. E. O. Chapman to a seat on the platform.

Inspector White of New Jersey read the following paper on "Industrial and Manual Training of Children":—

MR. PRESIDENT AND GENTLEMEN OF THE CONVENTION:—Edward Bellamy says, "First of all we must heed the cry of the children. We must deliver them from the taskmasters and hand them over to the schoolmasters." I claim that the future prosperity of this country rests mainly on the system of education adopted in our schools. The power of education is unlimited, and in all improvements of methods we must go to the very foundation and begin with the children in the primary classes. Their physical as well as their mental needs must be looked after. To accomplish this there can be no better way than to have manual training as part of the curriculum of every public school. Two classes of people oppose this form of education. The first includes those who argue against it on the ground of expense. They say our schools have already become a great burden to the tax-payer, and that any scheme to increase this tax should be carefully examined before its adoption in order to avoid the risk of having to discard it afterwards. You will find this class of people everywhere; in a community they act as a governor to an engine. Among the others who oppose the system are *professors, school teachers*, and persons who have taken little or no trouble to inform themselves on the subject. They oppose it on general principles, and can give no satisfactory reasons for their antagonism. But, in spite of all opposition, the good work is going on, and in every city or town in the State where manual training has been introduced it has proved a success beyond the most sanguine expectations of its friends, and as the people generally get better acquainted with it and see the advantages it offers, they will demand its adoption; and *teachers* who oppose it will be pushed aside by the wave of public opinion, and forced into occupations they are better fitted to fill. To those who are opposed to manual training on the score of expense, or who think it cannot be successful in our schools, I am prepared to show that the system introduced in Vineland has been in operation about two years, and that the extra cost per scholar did not exceed eighteen cents the first year. It is now in successful operation, nine hundred and fifty scholars deriving a benefit from it every year. The same plan can, with very little alterations, be adopted by any other school district in the State. The question that naturally arises is, what are the benefits to be derived from manual training should it become universal? It will undoubtedly check many of the evils that now exist in all factories and workshops where children are employed. The teaching of mechanical drawing, ventilating, heating, etc., in the schools will prove of the greatest possible benefit to scholars whose later years may be spent in a factory

or workshop. Take, for instance, ventilation, a subject of which we know very little, yet one that *every person should thoroughly understand* and know the *value* of. In the general class of buildings, public or private, that have not been planned by an architect, ventilation is hardly ever considered, and even architects themselves are sometimes guilty of very poor work, as is the case of this Senate chamber. While society is in such a condition that we must have child labor to some extent, manual training should be part of all school work, so that when boys or girls are forced by circumstances to earn their own livelihood they will be better qualified to do the work allotted to them. Boys and girls who have spent some years at school will, after two or three years' service in some factory or workshop, have forgotten much of their theoretical studies, which, had they been acquired in a practical manner, would always have been remembered. The difference between a boy who must stand around, carry water, run on errands and depend on the good pleasure of a workman to be shown anything, and one who can, under a judicious foreman, be set to work at some definite job, is so great, that in time manufacturers will not *care* to employ a boy *unless* he has had the advantage of manual training in the schools, and that boy you may depend will always command the best wages. The idea so prevalent in the minds of our youths, that a good *book* education is all that is wanted to be successful, must be *dispelled*. What is wanted in this age of improvement is a good *practical education*; and the young should be taught that it is as honorable to be a good mechanic as it is to be a lawyer or doctor; that the country depends for its welfare as much upon one as the other; that a good bricklayer, carpenter or shoemaker is of infinitely more value to a community than a poor lawyer, doctor or preacher; and that a man or woman who can by his or her skill produce good work and useful articles is as much to be honored as the most eloquent orator who can by word-picture or flowery language fire his audience to the highest pitch of enthusiasm. And so all along the line. Boys or girls who are taught drawing or sewing can appreciate a fine picture or nice piece of needlework when they see it, because they know it requires skill, patience and hard work to produce it; and the very fact of their knowing this makes them respect and honor the person who is capable of producing that kind of work.

While recently inspecting a file factory in my district, a circular and price-list of the establishment was handed me, on the back of which was printed instructions as to the proper use of files. What particularly struck me was this suggestion: "A new file should always be used with a light pressure on the work till the needle-like points of the teeth are worn away, after which a much heavier pressure may be used with less danger of breaking off the teeth at their base." Most of those present are mechanics. It would be interesting to know how many understand

the proper use of a file. I am free to confess that I knew very little if anything regarding the proper way to use a new or, for that matter, an old file. I have for over seventeen years worked at an occupation that required me to use a file every fifteen or twenty minutes during the day. My ignorance in this respect I attribute to the man of whom I learned my trade. He did not have the time to show or tell me much about the business and I had to depend for the most part upon the willingness of the journeymen to instruct me. My case was similar to thousands, and it all simmers down to *this*: The owner or boss of the shop or factory spends most of his time soliciting business; the foreman or manager does not have the time to look after the boys; and the latter, in most cases, have to depend upon the workmen to be shown any of the little details by which the work can be properly done,— *little details which ought to and can be learned in school*. James MacAlister, superintendent of the Philadelphia schools, at a meeting of the American Institute of Instruction at Saratoga in 1882, said: "We must not close our eyes to the fact that by far the larger number of men in every civilized community are workers, to whom a skilled hand is quite as important as a well-filled head." He also said: "The hand is the most marvellous instrument in the world. It is the necessary complement of the mind in dealing with matter in all its varied forms. It is the hand that rounded Peter's dome. It is the hand that carved those statues in marble and bronze, that painted those pictures in palace and church, which we travel into distant lands to admire. It is the hand that builds the ships which sail the sea laden with the commerce of the world. It is the hand that constructs the machinery which moves the busy industries of this age of steam. It is the hand that enables the mind to realize in a thousand ways its highest imaginings, its profoundest reasoning and its most practical inventions."

Look around you, gentlemen! Almost everything you see in this hall has been produced by that marvellous instrument the hand. Yet in our public schools it is only of late years that this wonderful instrument has been trained or taken into consideration at all. We must bear this in mind, that, in seeking the welfare of the children of to-day, we are also trying to benefit those who will have the management of this country in the years to come. To secure the object aimed at, we must depend upon schools in which manual training is taught,— a training by which boys having a taste for any particular handicraft are given opportunities of developing such taste and acquiring such knowledge as will undoubtedly give to the world many a first-class mechanic or inventor.

In the twenty-first annual report of the Jersey City superintendent of schools will be found a report from a special committee on manual training. It states "that the best minds of our land are at the present moment demanding that the training of our children shall cease to be



one-sided, having begun to realize the all-important fact that the skilled hand must keep pace with the *trained intellect*; and to-day it is generally admitted in educational circles that the training of the sense of touch and the sense of sight is a fundamental necessity in the education of our youth." In the same report will be found one from Miss Frances Soper, principal of the Girls' Grammar School, No. 11, who obtained permission from the superintendent and local committee some two years ago, to detain her pupils one hour per week to give them instructions in sewing. She says, "Could the local committee furnish us material we could accomplish much. The cost would be trifling; three dollars would suffice for a class of forty." She further says: "We do not claim to make rivals to Worth, but we do hope that our pupils will be able to keep their own clothing in proper repair, to render intelligent help at home, and, in the future, to cut and make many ordinary garments."

New Jersey is fully committed to the introduction of manual training in the public schools and offers liberal aid to any city or school district raising a certain sum for that purpose. In brief, the State offers to any school district raising \$500 to \$5,000 yearly, for the purpose of adding manual training to the regular course of studies, to add a like sum. That is, for every \$500 or more raised in each district, the State gives \$500 or more, up to \$5,000, as the case may be.

In the town of Orange, N. J., manual training has recently been introduced in the schools. The course comprises wood-working, mechanical drawing, clay-moulding, etc. In the work-room are fifteen double benches for carpentering, provided with vises and tools. Instructions are given in the proper use of tools. The pupils lay out their work from cards, with rule, dividers, try-square, bevel and gauge, and then perform the operation indicated in sawing, planing, chiseling, fitting joints, etc. The cooking department next year will be arranged so as to include most all of the high school girls. The superintendent, Mr. Cuts, is much pleased with the success of the undertaking and thinks manual training will be a necessary part of all school work. The same may be said of Hoboken. In the first annual report of the Board of Industrial Education, of which our Governor is president, we find there are 1,450 pupils now being instructed in the manual system in that city. They are taught drawing, clay-moulding, domestic economy and wood-work. The classes are working harmoniously and effectively, and the opinion is fast gaining among the citizens that that important branch of education is indispensable to the public schools. There are several other towns and cities in the State that are doing successful work in that line, besides those I have mentioned.

But what I would especially direct your attention to, is the *Deremer Plan*, under which nine hundred and fifty scholars, ranging in age from six to eighteen years, are now being taught successfully in our town.

In this you will notice that the different courses in drawing are divided into steps. These steps have been arranged in accordance with recognized principles of teaching. I wish to say right here that Mr. Deremer is careful that nothing is introduced until its utility is clearly recognized, and even then he invariably refuses its introduction if it is likely to take time which might be made more valuable in some other direction. And *because of these carefully laid plans* we believe they are worthy of your consideration; and since a good way to judge of a plan is to examine its production, I have with me some of the results of that plan, and will, with your permission, submit them to your inspection. In what we have said about the plan under consideration, we intend no reflection upon other plans. The comparative value of different plans must be fixed by *comparison*. What I wish to call your especial attention to, is this *fact*, that not only our pupils, but also our *teachers*, are being trained in the work. I before stated that nothing is introduced without a reason for its introduction; and as it has always been asserted and never denied that, "As the teacher, so is the school," therefore our teachers are regularly and thoroughly trained, so that we are in no way beholden to any specialist, but are prepared to carry on our work with the regular *corps* of teachers.

The first step in drawing aims at giving the ability to draw straight lines. The pupil first expresses his designs by means of wooden tooth-picks. You will notice that no two plates are exactly alike. This is because the greater part of these designs are original. We believe that to simply copy, and to copy only, makes only a copyist; and while the ability to copy is desirable, it is not the only desirable ability. Satisfactory ability having been acquired in the first step, the pupil receives a certificate which entitles him to take up the work of the second step, or the ability to draw curves. In this step the pupil expresses his designs by means of cut paper, waxed cord, etc. The third step is copying from the flat, or in plain words, the copying of pictures. This is the only step in this course in which drawing-books having printed models can be used. The next and last step in the free-hand course is drawing from the object. In reality the first and second steps are drawing from the object, but not in the same sense. In those steps the objects are plane figures, but in this they are solids. In the fourth step are incidentally taught shading and practical perspective. Having completed the free-hand course, the pupil is allowed to take one or both of two courses, mechanical drawing or designing. Pupils generally take both courses. The object of the mechanical course is three-fold; first, mental culture; second, to make possible a general course in architecture and engineering, and that to assist in carrying on a course in tools and processes. No pupils have finished the mechanical course, but, so far as it has been carried, I exhibit specimens of the work done.

It will be noticed that the first step is about a year's work in practical geometry. When this step has been mastered it makes the regular course in geometry not a bugbear, as is often the case, but a study which never fails to bring delight to the pupil. And thus it will be seen that our course in manual training is an integral part of our school system, and that, instead of being a hindrance to the regular studies, it really is an assistance; and in arranging the entire curriculum you will find this relation has been steadily kept in view. You will also notice that ventilation receives proper attention, and we are informed that the yet unfinished part of the mechanical course gives special attention to this much neglected subject. The course in designing also has a three-fold object in the formation of correct taste, the thorough study of color, and the ability for original investigation and work. This plan also requires each girl to master a course in plain and ornamental sewing. At the same time each boy takes a course in the use of tools and construction of apparatus from wood and metals. And now, gentlemen, in conclusion, allow me to say this: I am fully convinced, and leave it to your own good judgment, that should manual training in our schools become universal, will it not be the means of giving to our children a practical illustration of what they will have to contend with when they are called upon to battle for themselves? Will it not be the means of giving us better American mechanics? And above all, will it not teach our youths to respect those who toil? And will not that make them better citizens?

At the conclusion of the reading of the paper Inspector White showed to the Convention a number of designs of various kinds drawn by children from eleven years old to sixteen.

Chief Inspector Fell of New Jersey read the following interesting paper on "Child Labor."

MR. PRESIDENT:—In my judgment it is wise that the factory inspectors of the United States meet at least once a year and discuss the features of the factory laws now on the statute books of several of the manufacturing States; that we compare them and see wherein they differ and wherein they can be made more homogeneous, so that in the near future there will be no complaint on the part of manufacturers of one State that the law is more oppressive than the laws of another.

I might consume considerable time in discussing the growth of the factory system in other countries, and the origin and growth of the factory system in our own country, but Carroll D. Wright, in his report

of the factory system of the United States, covers the subject so well that it is a better reference than anything that I could say in the limited time of a convention of this kind.

The conditions of child labor and education are three, namely: Moral, Mental and Physical. As the introduction of machinery increases, more stringent laws are needed to prevent the employment of children; as machines are invented to employ cheap or unskilled labor, the aptitude of children to learn makes them more desirable as part of the machine, as well as being more pliable under controlling influences. All the elements of the children, that under proper conditions would develop the highest degree of manhood and womanhood, are dwarfed by factory life, if that life is begun at too early an age and if the employment is for long hours at laborious work. This is the germ of child labor and factory inspection and must receive the moral support of every community. Child employment, without restriction or supervision, means ignorance; ignorance, as a rule, means poverty; and poverty, under certain conditions, means crime.

Just to the extent that you restrict unjust child labor, you restrict the crime that naturally follows — the weakening of the moral, intellectual, and physical forces of the human being.

"The proper inspection of factories and workshops is second to no other department of the State in importance," inasmuch that, as the department grows more efficient, it will result more and more in preventing those conditions of society that our prisons and workshops are designed to correct; and to prevent the making of criminals is more humane as well as more economical to the State than are the reformatory processes applied to our criminals who are the results in a degree of a non-just and unwise factory system. I doubt whether that is the highest state of society that allows a condition to exist which in its nature must produce poverty, ignorance and crime, and then imprisons those who are its victims. If the moral and intellectual training of the children is the bulwark of freedom, then that system or condition of society which hinders the education of the masses must be vicious and a source of danger to our free institutions. Labor is a natural condition of society, and, therefore, necessary and honorable; and, under proper conditions, factory life is far more preferable than labor carried on in a small way in tenement-houses where there is little or no attention given to the sanitary arrangements of the small and crowded rooms of the operatives. In my own State I have seen a far worse condition of labor in rooms hired by small piece-work bosses in tenements than exists in the worst regulated factory. I often hear it claimed that the father, being the head of the family, should have full control of his children, and that the State has no right to interfere. I admit the claim under certain conditions; but when, by the imprudence of the parent or the

greed of the employer, children are taken from the cradle to the factory, then it is the duty of society, as organized under the laws, to protect itself against an unjust system that would sap the very foundation of the government.

Mr. President, I am satisfied that we will return from this convention to our work better equipped for the duties of the next year than we were in the past.

After the reading of the paper by Chief Fell several of the delegates commented upon the same and were of the opinion that the enforcement of child-labor laws would be of great benefit to the community.

Inspector White of Massachusetts read the following very interesting and beneficial paper on the "Ventilation of School-houses."

**MR. PRESIDENT AND GENTLEMEN OF THE CONVENTION:** — The subject of the few remarks to which I shall invite your attention is that of the ventilation of school-houses. So much has been said and written on the matter of ventilation, especially of late years, by men of wide knowledge and experience, many of whom have made it the study of a lifetime, that it seems an almost hopeless task for me to say anything that will interest you, or pay for the time I shall occupy. But it is only by agitation that any reform is brought about, and by reiteration that any fact is permanently impressed upon the mind. As I may not be able to tell you any thing that is new, I can only hope that my presentation of the old may serve to deepen your convictions of the great importance of providing for an ample supply of pure air in our school buildings, and to show, in some degree at least, how that desirable result may be attained. If I should begin by saying that we are all convinced of the importance of pure air, probably no one would dispute the statement; and yet it is only in a limited and theoretical way that it is true. Practically, we violate our convictions in nearly every building that we erect, whether for residential or other purposes, and nowhere more so than in our school-houses, where, for every conceivable reason, the air should be the purest that money or skill can secure.

For the purpose of showing the importance of its purity, let us consider for a moment what science has to tell us of this gaseous envelope that surrounds our earth. Atmospheric air is a mixture of certain gases in definite and almost unvarying proportions. It consists of about seventy-nine per cent. of nitrogen, nearly twenty-one per cent. of oxygen, about four one-hundredths of one per cent. of carbon dioxide, com-

monly called carbonic acid, a varying amount of watery vapor, and a varying but almost inappreciable amount of other gases and of solid matter. The amount of the two principal gases is nearly always the same, the variation being but a few hundredths of one per cent. at all altitudes and in all parts of the world; and the experiments of scientific men have shown that the amount of carbonic acid is nearly the same, whether the air is taken in the streets of New York or on the summits of the Catskills.

Nature takes care to keep the air, in its main constituents, of one unvarying degree of purity. Is it not reasonable to suppose that there is a purpose in all this care? If it made no difference to any living being whether there were four parts or forty parts of carbonic acid in ten thousand parts of air, would the amount always be kept within such a minute fraction of the smaller figure? The amount of watery vapor in the air varies greatly in proportion to the temperature and from other causes. At 32° F. a cubic foot of saturated air contains a little more than two grains of water, and at 100° nearly twenty grains. Probably, within certain limits and independent of other conditions, neither the actual amount of water in the air or the percentage of saturation has much effect on the health, but the amount of carbonic acid cannot be greatly increased or the amount of oxygen greatly diminished without serious injury to the blood.

Science having shown us that nature keeps the air pure; let us see what this purity of the air has to do with life and health. The Scripture says, "The life is in the blood." That life comes from the air. The food of man differs greatly in different parts of the earth, but the air is always the same. Bananas and blubber will both make good blood, but not without oxygen. Nature always furnishes a sufficient amount of oxygen; it is only civilized man who attempts to limit the supply.

Physiologists tell us we can never sufficiently admire the wonderful structure and mechanism of our lungs. Take, for instance, the air cells, one-hundredth of an inch in diameter, of which the lungs are mainly composed. Think of the extreme thinness and delicacy of the membrane which lines these minute cells. There are millions upon millions of cells, and hundreds of square feet of membrane in a single pair of lungs, and every one of these cells is surrounded by a network of blood-vessels.

Authorities do not agree as to the exact nature of the work done in these little cells where the blood and the air come so nearly together, but one thing is certain; the blood comes to these cells in a dark, filthy stream, and it goes from them back to the heart, brilliant in color, and abounding in life and energy; to be sent from thence to nourish all parts of the system, and, in the brain, by that most mysterious of all vital processes, to be transmuted into thought.

Now the air goes to the lungs, as we have seen, containing, if pure, four parts of carbonic acid in ten thousand parts of air. It comes from the lungs with the carbonic acid increased nearly one hundred times, and having lost rather more than an equal volume of oxygen. The carbonic acid has been taken from the blood into the air, and the oxygen has passed from the air into the blood. It has been discovered that if the air taken into the lungs is impure, less carbonic acid is evolved, and less oxygen is absorbed, just in proportion to the impurities in the air.

Now, as we know that the elimination of the carbon from the blood and the supply of oxygen to it are necessary to its purity and to the continuance of life, and as we have no reason to suppose that pure air takes out any too much carbon or supplies any too much oxygen, it follows that impure air must cause more or less impurity in the blood and therefore must be injurious to health. But there is another and far more dangerous impurity in the air in school-rooms than carbonic acid, and that is the waste organic matter from the lungs and skin. Carbonic acid, as we have seen, is always contained in the air in small quantity, and, when in not too great excess, is probably chiefly injurious because it interferes with the proper changes going on in the lungs. But this waste animal matter is not contained in pure air at all, and is of itself a deadly poison. If the air as it comes from the lungs can be so diluted with fresh air that the proportion of carbonic acid will not be greatly in excess of the normal quantity, it may be safe to breathe; but how about the organic matter? Pure air contains none of it. How much dilution will render it harmless? This is an important question in ventilation, and that it is coming to be so considered is shown by the difference in the amount of fresh air required by the best authorities now and forty years ago. Then, seven to ten cubic feet of fresh air per minute for each scholar was thought to be sufficient in a school-room; now, fifty to sixty feet are asked for. I should think it wholly unnecessary to enter into any argument to prove the great importance of breathing pure air were it not for the fact that I meet so many persons, some of whom are members of school committees, who, while they will readily admit, in a general way, that pure air is essential to health, do not seem to be sufficiently aware of the danger from impure air as it exists in an ordinary school-room. They seem to think that as our school-houses never have been ventilated there is no occasion for any anxiety about them now. Many old school teachers tell me that they never had any difficulty in ventilating their school-rooms by means of the windows. Windows are made to admit light and not air, and, except when the temperature of the outer and inner air is so nearly equal that the air can be permitted to circulate freely through the rooms, they should never be depended upon for ventilation. Besides, it costs no more to admit the *same amount* of air in the

proper way, and warm it before it enters the room, than it does to let it in cold, at a window, and heat it after it is in. The saving which some people think is made by admitting cold air through the windows, or by means of patented devices, is effected only so far as the amount of fresh air is restricted.

Who can tell how far the impure air in our school buildings is responsible for the prevalence of some of our most dreaded diseases? New England is sometimes said to be the hotbed of consumption, and the climate is supposed to particularly favor that disease, and yet the native Indian did not die of consumption, neither did his children die of diphtheria or scarlet-fever. The Indians had small families, and if their children had died as ours do there would have been no Samoset to welcome Englishmen.

Pure blood resists disease. Impure blood is a ready-made hatching fluid for all the germs that destroy life. If the public could be so thoroughly convinced of the importance of pure air in our school-houses as to be willing to pay for it, the battle would be half won. When we determine that our school-rooms shall be well ventilated, the next thing to be considered will be how that work may be accomplished. In considering this matter we need not confine ourselves to any particular method, or even any particular theory of ventilation. Pope's dictum as to the best form of government, changed to suit the subject, will apply to methods of ventilation, "Whate'er best ventilates is best."

The apparent object of most of the systems of ventilation now in use is simply to so far dilute the poison in the air as to render it harmless. If a school-room contains twelve thousand cubic feet of air and accommodates fifty scholars, the air in that room, if it is tightly closed, will soon become unfit to breathe; but, if fifteen hundred to two thousand cubic feet of air can be taken out of that room every minute and an equal volume of fresh air introduced and mixed with the remaining impure air, it is supposed that the poison will be so far diluted as to be no longer injurious.

Perhaps this is the best that can be done as our buildings are at present constructed and arranged, but it is needless to say that this is not the plan on which nature works. In the stillest day the air under the open sky is always in motion, and it is estimated that, in such a day, over thirty thousand cubic feet of air will come in contact with a man of average size in every hour. There is no dilution in this. As fast as the air is exhaled from the lungs it is taken away and absolutely fresh air is presented for the next breath. It would be difficult to very closely imitate nature in a school-room, but the nearer we can approximate to it the better, and I believe we shall eventually approximate to it much nearer than we do at present. Certainly, if we are to work entirely on the theory of diluting the poison, we cannot possibly dilute it too much.



In the distribution of the fresh air in a school-room a horizontal movement along the breathing line is, for obvious reasons, not desirable even if it were practicable. The air must therefore be taken in at the bottom of the room and taken out at or near the top, or *vice versa*. If admitted at the bottom it must necessarily have a large number of inlets, as it will rapidly rise, and there is not much room below the breathing line for the lateral movement required for proper distribution. Theoretically, however, this is, perhaps, the most scientific method of ventilation, as it utilizes the natural movement of heated air. But besides the difficulty of providing the requisite number of inlets to insure the proper distribution of the air, there is the further objection to this method, that the dust, which is always settling to the floor, and the odors from the clothing and exhalations from the person are carried up with the air to be inhaled. If, on the contrary, the fresh air can be introduced at the top of the room and thoroughly diffused above the breathing line and then made to move evenly and vertically downward and be carried out at the bottom, we should have a fairly perfect system of ventilation. One difficulty with this method is that the air will be cooled much quicker near the outer walls and will consequently descend more rapidly there than in other parts of the room. This can be remedied somewhat by increasing the non-conducting quality of these walls. All school-rooms should have double sets of sashes in the windows, not only because they keep the heat in in winter, but because they afford a much better means of letting in fresh air in summer than single sashes on account of the lessened liability to draughts. The ceilings of all school-rooms, where the air is taken in at the top, should also be made as non-conductive of heat as possible. The ceiling of a school-room of ordinary size contains about one thousand square feet of surface and generally consists only of laths and a coat of mortar. In the attic there is frequently only a single floor over the ceiling of the room below, and sometimes no floor at all. With the temperature of the air at the top of the room at eighty to ninety degrees and that of the attic at thirty degrees, or lower, as it may be in a cold day, it is easy to see what an amount of heat may be lost.

Wherever there is any attempt at a proper system of ventilation the walls and ceilings of the rooms should be made as impervious to both air and heat as possible. An objection has been made to the vacuum system of ventilation, that the air is drawn into the room from every crevice in the walls, floors and ceilings, and also from the halls and clothes-rooms, where it is not likely to be pure or free from odors; and one objection to the plenum method is, that the impure air is driven out through every crevice and opening, thus, possibly, forming accumulations of foul matter in places that cannot be reached to be cleaned. Heating and ventilation are closely connected. No system of ventilation can work well in cold weather unless the heating appliances are

sufficient for the purpose and properly arranged. Probably the best method of heating a school-room is by low-pressure steam on the indirect system. Hot water does not seem to find favor in this country, although some of the arguments against it do not seem to be very conclusive. Properly constructed furnaces also furnish an economical means of heating, and jacketed stoves are used with good results both as to heat and ventilation.

In heating by some of the furnaces in use, however, the air is almost sure to be overheated. Indeed, it seems to be the aim of some of the manufacturers of these air-destroying devices to heat the air as hot as possible, and so send it into the room in a small quantity at a high temperature. Of course no such apparatus can be used in connection with any well arranged system of ventilation. The usual remedy for this overheating and drying of the air is to put a pan of water in the air chamber of the furnace, or perhaps a porous jar of water in the register, but this does not restore the life to the air. It may be difficult to tell what, besides water, has been taken out of it; but, to overheat air and then attempt to make it good by resaturating it with moisture, is a good deal like expecting a water-soaked dried apple to taste like fresh, ripe fruit.

There is an element called ozone that is always present in the air in small quantity. Ozone is supposed to be simply oxygen in a peculiarly active condition, but this condition of oxygen is, possibly, an important agent in the chemistry of life. Ozone is produced in one way by the passage of electricity through the air. Every discharge of lightning from a cloud converts oxygen into ozone. A recently announced scientific discovery is, that ozone is blue, and that the increased depth of color, which we sometimes observe in the sky and on the distant hills, especially after a thunder shower, may be due to the presence of an unusual quantity of this agent in the air. We have all noticed the bracing and exhilarating feeling in the air at such times; may it not be that the feeling and color have a common cause?

Ozone is decomposed by heat, and at a temperature which is frequently attained in air that is heated by a furnace is totally destroyed. Perhaps the common expression that furnaces burn the life out of the air may be literally true.

Every system of heating should be so arranged that the supply of air to the rooms will be at all times very nearly the same whether the temperature of the outer air is at zero or fifty degrees above.

The failure to accomplish this is one great defect in most of the heating appliances now in use. There should also be a steady and certain movement in the extraction flues for the vitiated air. It will not do to have any back draft. As before intimated, all ducts carrying vitiated air are likely to become coated with foul matter. There should be no pos-

sibility of any return of this matter to the rooms. An aspirating chimney, if properly constructed, can at any time be purified by fire. All ducts leading to such a chimney should be of metal or some equally non-permeable material, and, as far as possible, so arranged that they can be kept clean.

I have confined myself to merely making suggestions as to the best methods of ventilating school-rooms, without going into details. To enter into a discussion of the proper size, number and location of the inlets and outlets for the air, the areas and heights of aspirating chimneys, and the relative convenience, effectiveness and economy of fans or heat in moving the air, would take me far beyond the limits of this paper. Nothing has perhaps contributed more to the failures in ventilation than the attempts made to apply some method, which has proved fairly successful in one case, to another building which, in its location, surroundings and interior arrangements, is totally unlike the model. Every building constitutes a problem by itself, to be solved only after a careful study of all the conditions presented, and then only with a knowledge of the principles of ventilation and heating, and the mechanical skill and experience requisite for a practical application of this knowledge to the work in hand.

Every school-room should be planned with a view to a thorough system of ventilation. It is not unlikely that changes might be made in the ordinary construction of school buildings and the arrangement of the rooms, and possibly in the seating of the scholars, which would tend to make the problem of good ventilation easier of solution. The importance of thorough ventilation of school-houses can hardly be over-estimated, and I am proud to know that my native State is taking the lead in this matter, as she usually does in all matters of intelligent reform.

Public opinion is sometimes slow in forming in the Old Bay State, but once formed it readily crystallizes into statutes. Many people think this tendency is too strong, and that we are too much inclined to regulate matters by law that should have been left to regulate themselves, and some think that this very law in regard to better ventilation is an instance of that kind; but if they will watch the operation of this law for a few years they will witness an improvement that will convince them of their error. The law has only been in operation for one year, and yet it has already vindicated the wisdom of its enactment. Notwithstanding all the work that has been done by our scientific men and experts and all the books that have been written and lectures that have been delivered on the importance of pure air, there have been scores of school-houses erected in the State within the last five years in which there is not what might be considered even an apology for an intelligently arranged system of ventilation.

Since the law went into effect nearly every plan for a school-house which comes into the State inspector's office shows that careful and, in many instances, intelligent study has been made of this very important matter. It is safe to say that however far they may fall short of the ideal, and they will doubtless in most cases fall very far short of it, the school-buildings now being erected in the State will, in regard to heating and ventilation, be an immense improvement on what has heretofore been done. A very great improvement is also being made in the buildings already in use, but such buildings constitute a far more difficult problem to be dealt with than that of providing for new buildings, and the work will be necessarily slow and many times more or less unsatisfactory in result. Nearly all the factors of a good system of ventilation are wanting, and some of them it is difficult, if not impossible, to supply. Still the opening of the next term of the schools will show an improvement in many of the school-buildings in nearly all parts of the State. The State inspectors are not dogmatic in their views or requirements, confining themselves in all cases to requiring improvements in the buildings they inspect, leaving the owners always at liberty to consult experts as to what shall be done. Experience teaches, and perhaps experience only can teach in matters of practical ventilation.

The inspectors have exceptional opportunities to observe and study of the failures in the buildings already in use, and also in those now being erected or improved. They have already accumulated a large amount of information in regard to the present condition of school buildings, which will appear in the forthcoming report of the chief inspector, and, during the next school term, a close study will be made of the methods now being introduced into new buildings. They are working under the same system that has produced such good results in other directions, in the enforcement of the factory and building inspection laws, and, so far, their efforts seem to be appreciated, and their enforcement of the law to be approved, by the people.

Chief McDonald of Ohio read the following paper on the "Importance of Sanitary Knowledge."

Let your mind carry you to some of the over-crowded workshops and factories in your respective States, where, until factory inspection was inaugurated, sanitarian matters were scarcely ever thought of. But before going deeper into the subject, allow me to draw a pen-picture. Many of our manufacturing establishments, while in their infancy, were started in small buildings constructed for the accommodation of but few. Their business has so increased and been crowned with such success that it has necessitated the building of addition after addition, until now many of them cover acres of ground, and shelter thousands while

they toil for a livelihood. These additions have been built at times when more room was the only question considered, and the all important matter of good sanitary provisions had been utterly forgotten.

You can again call to your mind factories that have been erected under the supervision of engineers supposed to thoroughly understand the perplexing question of workshop hygiene, but for some reason or other the defects will soon make themselves known, — bad air, defective sewer system and other disease-producing influences which lurk in the workrooms, sapping the vitality, paling the cheeks, dimming the eyes and shattering the nerves of the people there employed. It is not the wish of the manufacturers that their factories should be so, but, on the contrary, they are desirous and ambitious that their factories should be placed in a perfect condition, and they would not spare expense or exertion to accomplish that object; but they do not know what the trouble is, nor do they know how to rectify it when they discover the real trouble. It is essential that the inspectors of workshops and factories should become experts in sanitary measures in order to fulfil the purpose of the law giving your departments life. As I have said before, the manufacturers do not desire the lives of their employees jeopardized by a bad sanitary condition any more than they do by a defective elevator or other unprotected machinery; but when the danger of the elevator has been pointed out, they readily see the philosophy of the argument, and understand how to repair and put the machine in perfect working order. But when the ventilation or sewerage system is bad, which is often the case and scarcely ever visible, one not thoroughly posted on the subject would naturally suppose and pronounce it all right. Here is where sanitary knowledge is essentially valuable. The inspector carefully examines the ventilation, sewerage, plumbing, etc., and, if versed on this subject, can easily detect any existing evil and prescribe the appliance for relief; but to do this successfully it behooves each and every one of the inspectors to become a close student of this perplexing and important question. We should read the best sanitary journals published. We should digest the productions of the ablest writers on the subject known to the literary world. We should, here in our conventions, discuss this question, thereby educating each other in our own experience from day to day. Let the remarks and ideas be ever so crude, in a whole they will form a strong and intelligent opinion. In the meantime, it will be decidedly advantageous for each inspector to note any peculiar condition he may come in contact with from time to time, and in our conventions explain the peculiarity of the condition, his experiments and their results, thereby preventing useless experiments by other inspectors in other States.

The inspector should make himself a teacher of sanitary reform, giving the manufacturers the benefit of his study by placing their work-

shops and surroundings in the best possible condition, and he then becomes an indirect teacher to the persons there employed. For, being surrounded with good and excellent sanitary construction and practice, they will also become enlightened, to some extent, in this direction, and they, too, will practice better sanitary habits in their homes.

It is not a reflection to say one is ignorant on sanitarian matters, as it is one of the deepest and most perplexing questions now being agitated before the people, and it requires years of study to become its master. The public ignorance of the people upon this question is appalling, and it can only be remedied by constant teachings of scientists and through the newspapers. I believe the inspectors of workshops and factories should make every effort to promote the teaching of this question, by first teaching themselves, as before described, and in the meantime to constantly dispense the knowledge they have acquired by experience and study to those who are compelled to devote their entire time and attention to other matters; and, by so doing, you will raise the sanitary condition of the workshops and factories of your respective States and districts to such a position towards perfection that it will astonish even the most intelligent of our number.

The enactment of inspection laws was for the purpose of saving life and limb. The purpose of the law is noble and good in every detail. You see in every day's duty as an inspector something whereby accident is liable to occur from exposed and unprotected machinery. This apparent danger is detected immediately by the inspector; he explains to the proprietor, who, with a little expense, provides such guards as may be suggested, and thereby prevents accident. He is satisfied and pleased to protect his employees from danger, and at the same time prevent the possibility of a suit for damages. But, on the other hand, if the ventilation is bad, the air being impregnated with carbonic or other dangerous gases, or if there is some defect in the sewerage or other sanitary arrangements, it will not be so easily detected, though it may be drawing the very life and vitality out of those employed therein; and when one has lost his or her health or life through such a condition of affairs there is no recourse through the medium of a damage suit, the manufacturer does not stand in constant fear of its wrath, and he is therefore more likely to be slower to conceive the danger arising from this source than from an unguarded machine.

Again, your efficiency as sanitary inspectors is called into use, and if you are not able to handle this question in an intelligent manner, if you are not able to detect foul air and gases, if you are not posted on the construction of a sewer or other sanitary appliances, then, gentlemen, you are not thoroughly posted on the duties of an inspector, and you should become your own teacher at once. I recollect a conversation about three years ago with Dr. Simon P. Wise, president of the State

Board of Health of Ohio, and an eminent physician, who said: "The factory inspectors have a great field of labor before them, and, with the proper mode of procedure, they can do more towards bringing about a factory sanitary reform" (which means a general sanitary reform) "than any other body of men or officers in existence."

It requires but little thought to appreciate the philosophy of this argument, as it is the inspector's every day duty to examine into every thing in connection with the sanitary arrangement of workshops and factories. This excellent experience, together with the proper study of this important question, is one of the greatest teachers, and can result in nothing but education, and eventually we will become masters of the situation.

It is useless for me to enumerate the dangers arising from unprotected machinery, and we all agree that the legislators were well aware of these existing dangers when they voted to establish inspection departments; and I equally believe they were just as zealous that our factories be put in a good sanitary condition as they were that the building should be safe and the machinery protected. An unguarded rip-saw or exposed gearing is decidedly dangerous and would jeopardize the life and limb of the persons at or near them, should they be allowed to remain so unprotected; yet a bad sanitary condition, though not visible to the eye, is, in my judgment, far worse than if all the gearing, belting, shafting and machinery in general were to remain unprotected. Because a dangerous machine is only dangerous to those who are compelled to come in contact with it, but if the air is filled with poisonous gases, or the sewers discharge their deadly vapors throughout the building, it is jeopardizing the entire population of the building, and slowly but surely dragging all down to an early grave. Think of children of tender age who are compelled to enter shops and factories at twelve years of age and upwards, deprived of an education that they may help clothe and feed themselves and other members of the family still younger, compelled to labor day after day, and year after year, in workshops not properly ventilated, or over sewers or cesspools that are hourly vomiting contagion enough to impregnate the entire atmosphere, which is taken into their system with every breath, and is gradually bringing them to a life of sickness and misery.

As I write, I see those little pinched, pale faces, and to me they seem to send their appeals to high heaven for this much-needed reform, which inspires me with a great desire and determination to contribute my energy and time to better their condition by bringing about this reformation. We have the opportunity, and should become departments of sanitary science. We can and should educate each other in this science and its practical application, for no greater or grander results could be expected from the labors of any body of men. How can our manu-

facturers or the employees of the factories be expected to know much about workshop hygiene, when they must give every moment of their time to their respective branches of business? It is not expected, but in its stead, the legislature has created departments of inspection with a corps of officers who are supposed to know and to become informed on all subjects appertaining to the health of the people employed in or about such shops and factories; and while I believe the average legislator fully appreciates and understands that these departments are of great value to the public, yet I do not think they realize their value in detail, and it is now the duty of us, as officers of these departments, to exert every effort to bring our work up to that standard where they cannot fail to see and comprehend its importance.

The result of our labors cannot stop in the workshops, but by placing them in a good sanitary condition the people there employed would necessarily be healthy and happy, and the results of good inspection now extend to their homes. Can any one fail to see the necessity of sanitary inspection? I think not. Can you, as inspectors, holding these important positions, fail to see how absolutely essential it is for us to acquire sanitary knowledge? I think not. For it means the prevention of disease, and the promotion of health and intelligence. You owe it to suffering humanity; you owe it to yourselves. I believe we can and will master the situation and give the public an inspection that will be scientific in every detail. I hope to see the day when we, as factory inspectors, will be able to cope with this question. I hope to see the day when each and every department represented here will become a department of science.

I sincerely hope the day will come when we have made such progress on the sanitary question that we will be recognized by scientists, and to some extent looked to as authority. This can easily be accomplished by each and every one of us becoming students of hygiene. To do this, we must devote a liberal share of our time to the study of this subject; and when I say a liberal share, I mean a liberal share in comparison with the importance of the question. We should not stop at our own education on this subject, for to maintain sanitary discipline, it becomes necessary that the entire public be impressed with the importance of the question. We should use our influence to have practical hygiene taught in the common schools, taught from a scientific standpoint, that the coming generations will become enlightened and informed. We should seek the co-operation of our State and local boards of health, and we should give space in our annual reports to setting forth the result of our experience and study, showing our legislators the importance of this work, and calling upon them in a practical way for sufficient appropriations to enable us to carry out the spirit of the



law, thereby bringing the sanitary condition of our shops to a point of excellence.

Inspector Coe of New York remarked that nothing had been said about the guarding of saws. In New York a guard was used which had been introduced from Ohio, but it did not work well and was a failure.

Chief McDonald of Ohio said that he could not understand how it was that the guard had been a failure; it had worked well in Ohio.

Inspector Knight of Massachusetts asked what kind of protection had been or was given to band-saws.

Chief McDonald of Ohio said that they were protected by a simple piece of board. He had known cases where saws had broken.

Inspector White of New Jersey asked whose make of saws it was that broke.

Chief McDonald replied that he could not say.

Inspector White of New Jersey said that they must be of foreign make, as American saws, so far as he was aware, did not break. They must be of French make, as he had seen many of them that had broken.

Inspector Ellis of Ohio said there were reasons why band-saws should be guarded; one was to keep the dust confined. He said that the lower wheels should be cased.

President Wade called attention to the able paper prepared by Inspector White of Massachusetts; would be glad to hear any remarks on the same.

Inspector Ellis of Ohio made some interesting remarks relating to the paper of Inspector White of Massachusetts.

Inspector McKay of New York spoke of the great utility of the ventilation of school-houses as set forth by Inspector White of Massachusetts.

Inspector Jordan of New York also spoke in high terms of the paper on "Ventilation of School-houses."

Inspector Beers of New York thought that it was a matter

that required the attention of the inspectors in their several States.

Inspector Callan of New Jersey said that he was glad to be present and listen to such an able and instructive subject.

Inspectors Coogan, Sayre and Weinthal of New Jersey coincided with the remarks of the various inspectors who had preceded them.

Chief Campbell of Maine spoke in regard to the "Manual and Industrial Training of Children in Public Schools;" spoke in very high terms of Inspector White's paper in regard to that subject.

Inspector Mullen of Massachusetts made some interesting remarks upon the subject, referring to Massachusetts, which took great pride in the subject read by Inspector White of New Jersey.

Inspector White of Massachusetts spoke in regard to "Sanitary and Ventilation in Public Schools," and thought very great improvement could be made in that direction; also said that he had given the matter great study. Better ventilation would give the child better brains to learn.

Inspector Campbell of Maine thought that all the papers read should be embodied in the proceedings of the Convention.

Inspector Ellis of Ohio wanted all the proceedings published, as did also Inspectors Coe of New York and Davis of Ohio.

Chief McDonald also wanted the whole.

Inspector McKay of New York also wanted to see all the proceedings printed.

Inspector White of Massachusetts thought that the proceedings could be published in the minutes of the Convention, otherwise they would cost more.

Secretary Mullen asked what was the pleasure of the Convention. It would require much time to write them out and send a written copy to each department.

At the suggestion of Chief McDonald of Ohio each de-

partment signified their intention to take the following number of copies of the proceedings of the Convention :—

Ohio, . . . . .	200 copies.
New York, . . . . .	300 "
New Jersey, . . . . .	150 "
Maine, . . . . .	50 "
Massachusetts, . . . . .	200 "
Connecticut, . . . . .	100 "

Committee on Resolutions reported the following preamble and resolutions :—

The National Association of Factory Inspectors, in convention assembled, congratulate the people of the States of Massachusetts, New York, New Jersey, Pennsylvania, Ohio and Illinois upon the important advances made during the past year in the direction of educational and sanitary laws for the improvement of the mental and physical well-being of their children and toilers in industrial pursuits, according to the lines laid down from the experience of the factory inspectors of the various States, and recommended by the preceding conventions of those empowered to enforce such laws. The obvious good already accomplished to the country at large by the enactment of beneficent factory and educational legislation in a number of States justifies us in urging the adoption of similar laws in every State; and we also respectfully call the attention of the people of the United States to the necessity of further statutes of the following nature.

*First.* Preventing children under years of age from working in factories and workshops.

*Second.* Compulsory education of children under fourteen years of age; the appointment of officers to enforce such laws, and the establishment of State truant schools.

*Third.* Restrictions of the hours of labor of workers in factories to not more than sixty hours.

*Fourth.* Prohibiting the overcrowding of operatives in their work-rooms.

*Fifth.* Compelling the erection of school-houses upon scientific hygienic principles, and prohibiting the erection of any school building more than two stories high.

*Sixth.* Providing that all tenements, public halls, hotels, factories and workshops shall be constructed as nearly fire-proof as possible, with proper sanitary provisions, and the plans thereof to be submitted to State or local officers before building operations are commenced.

*Seventh.* Compelling the guarding of machinery, the protection of

elevators and hoistways, and the erection of fire-escapes where necessary.

We submit to the people that such enactments would be in the direction of sound public policy, and will tend to elevate and guard society in general against the evils of ignorance in our toilers, ill health in our children, unsafe workrooms for our industrial population, and protect the lives, limbs and property of all. Therefore, be it

*Resolved*, That copies of the foregoing be given to the telegraph press associations for circulation, and sent to the presiding officers of the legislative bodies and governors of the various States, and we respectfully urge them to aid in engrafting such laws upon their statute books.

L. R. CAMPBELL, Maine,  
JOHN FRANEY, New York,  
E. R. WHITE, New Jersey,  
EVAN H. DAVIS, Ohio,  
W. S. BUXTON, Massachusetts,  
WM. S. SIMMONS, Connecticut,

*Committee.*

On motion, the report of the committee was received, and adopted.

President Wade introduced Mr. Wolff of Troy, N. Y., who made a brief and interesting address on "Ventilation."

Committee on Resolutions, in regard to the secretary of the association, Henry Dorn of Ohio, made the following report:—

*Whereas*, In the retirement of Hon. Henry Dorn from the secretaryship of this association we lose a valuable and able coadjutor and an ardent worker for the good of the toilers of his State and country; and

*Resolved*, That we acknowledge his unselfish labor in uniting the factory inspectors of the various States in a body for the improvement of the general methods of factory inspection and factory inspection laws; and be it further

*Resolved*, That we tender him a vote of thanks for his efficient services and hereby elect him an honorary member of this association. And

*Resolved*, That a copy of these resolutions be engrossed and forwarded by the secretary to the said Hon. Henry Dorn.

L. T. FELL, Chief, New Jersey,  
JOHN FRANEY, Assistant Chief, New York,  
W. S. BUXTON, Massachusetts,

*Committee.*

On motion of Chief Fell of New Jersey, the resolutions were unanimously adopted.

On motion of Inspector Ellis of Ohio, Convention adjourned to meet at 2.30 P.M.

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AFTERNOON SESSION.

TRENTON, N. J., Aug. 8, 1889.

Afternoon session met at 2.30 P.M.

President Wade in the chair.

Minutes of previous session dispensed with.

Inspector McKay of New York moved that the Convention proceed to select a place for the holding of the next annual meeting.

Chief Fell of New Jersey offered a substitute, that the time and place be left to the next president of the association.

Chief McDonald of Ohio thought that it would be placing the president in a rather peculiar position. Would like to have the Convention in Ohio.

Chief Franey of New York thought that it would be all right if left to the president of the association.

Chief McDonald of Ohio said that the delegates would receive a warm welcome should they come to Ohio.

Chief Fell of New Jersey was opposed to fixing the time a year ahead.

The substitute of Chief Fell of Ohio was put and carried.

Inspector Campbell of Maine moved to take an informal vote on the place for the meeting of the next annual Convention.

Motion was withdrawn.

Inspector Coe of New York said that he would like to see Inspector Buxton's specifications on fire-stops printed in the proceedings of the Convention.

Inspector Coe of New York moved that the Convention proceed to the election of officers.

Chief McDonald of Ohio moved that the present president of the association, Chief Rufus R. Wade of Massachusetts, be elected president by acclamation.

The secretary put the motion, which was unanimously carried.

Chief Wade returned his sincere and heartfelt thanks for the honor conferred.

On motion of Chief Fell of New Jersey, Inspector Isaac S. Mullen of Massachusetts was elected secretary and treasurer of the association.

On motion of Chief Fell of New Jersey, Chief Franey of New York was elected first vice-president.

Chief Franey of New York moved that Chief Fell of New Jersey be second vice-president. Chief Fell declined.

On motion of Chief Fell of New Jersey, Chief McDonald of Ohio was elected second vice-president.

On motion of Inspector White of New Jersey, Delegate Simmons of Connecticut was elected assistant secretary.

The Convention accepted an invitation to inspect the pottery works of Ott & Brewer.

Chief Fell of New Jersey, on behalf of the inspectors of that State, extended an invitation to the delegates of the Convention to visit Glen Island. The invitation was accepted. On motion of Chief McDonald of Ohio a vote of thanks was extended to Chief Fell and assistants of New Jersey, in their efforts to make it agreeable to the delegates of the Convention, and also thanking the State of New Jersey for the courtesy in the use of the Senate chamber for the assembling of the Convention, and to the retiring officers and the press.

No further business appearing before the Convention, on motion, Convention adjourned *sine die*.

Attest :

RUFUS R. WADE,  
*President.*

ISAAC S. MULLEN,  
*Secretary-Treasurer.*

The following is a letter from ex-Secretary DORN, in answer to the resolutions passed by the Convention : —

EXECUTIVE HEAD-QUARTERS MECHANICAL ENGINEERS OF NORTH AMERICA. }  
OFFICE OF THE CENTRAL COUNCIL, }  
COLUMBUS, OHIO, Sept. 4, 1889. }

ISAAC S. MULLEN, Esq., *Sec'y-Treas. N. A. of F. I. of N. A.*  
No. 65 Bowdoin St., Boston, Mass.

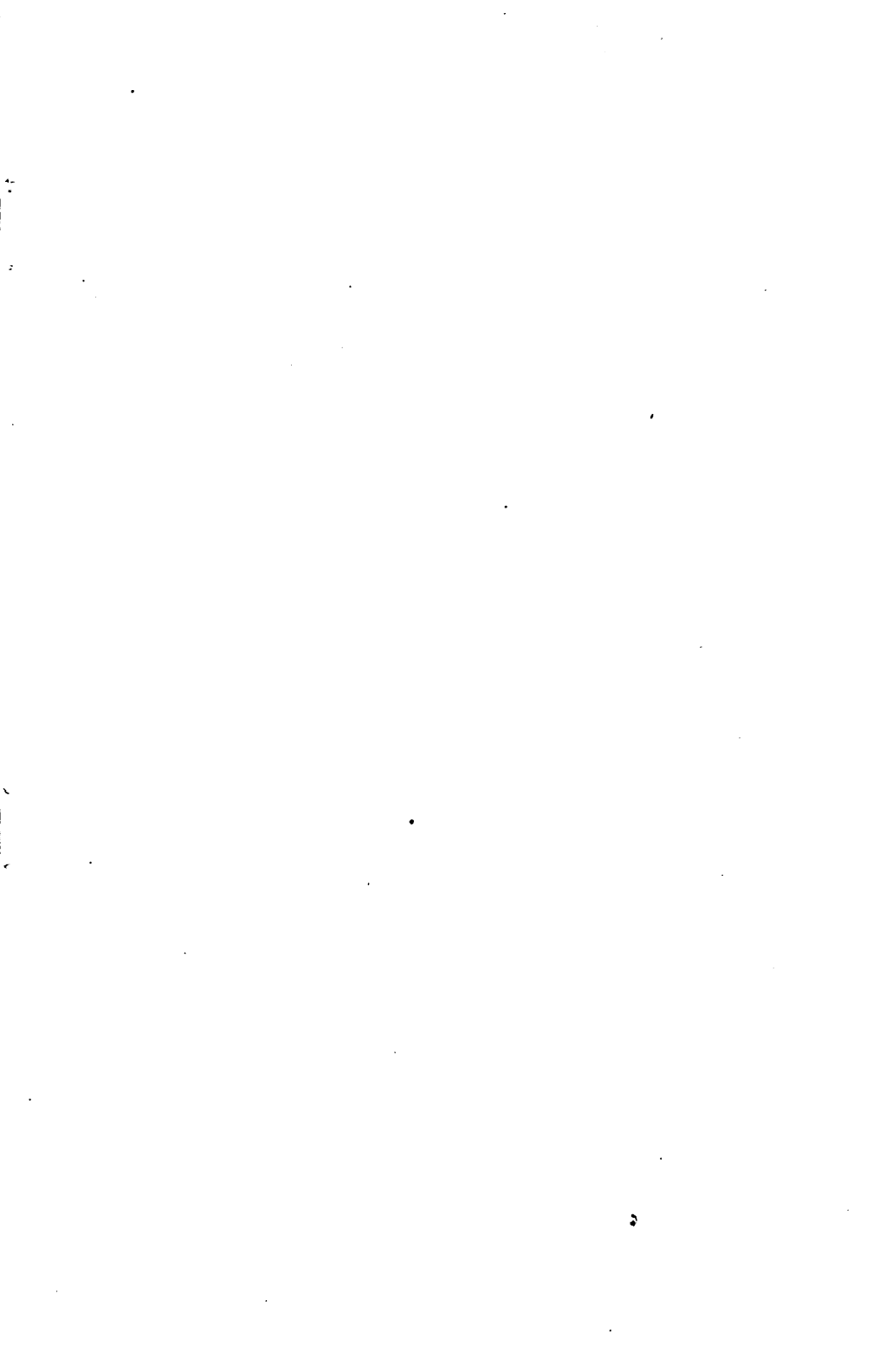
MY DEAR SIR:— On my return to the city I was greatly surprised by receiving the most beautiful gift, in the shape of engrossed resolutions.

Allow me to thank the members of the Association, through you, for the kindness they have shown me by passing these resolutions. I can assure you all that it is most highly appreciated, and shall be regarded as an everlasting remembrance.

May the Association prosper in the future as it has in the past, is the most earnest wish of

Yours respectfully,

HENRY DORN.







FOURTH ANNUAL CONVENTION  
OF THE  
INTERNATIONAL ASSOCIATION  
OF  
INSPECTORS  
OF  
Factories and Workshops  
OF  
NORTH AMERICA,  
HELD AT  
NEW YORK CITY, AUG. 27-30, 1890.

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BOSTON:  
WRIGHT & POTTER PRINTING COMPANY,  
18 POST OFFICE SQUARE.  
1890.

## CHIEF INSPECTORS.

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RUFUS R. WADE,	. . . . .	Boston, Mass.
L. T. FELL,	. . . . .	Orange, N. J.
WM. Z. McDONALD,	. . . . .	Columbus, O.
JAMES CONNOLLY,	. . . . .	Albany, N. Y.
JOHN FRANEY, <i>Assistant Chief,</i>	. . . . .	Buffalo, N. Y.
WM. H. MARTIN,	. . . . .	Harrisburg, Pa.
W. S. SIMMONS,	. . . . .	Hartford, Conn.
L. R. CAMPBELL,	. . . . .	Rockland, Me.
HENRY CLAYMIER,	. . . . .	Milwaukee, Wis.
JOSIAH B. BOWDITCH,	. . . . .	Providence, R. I.
ROBERT BARBER,	. . . . .	Toronto, Can.
JAMES MITCHELL,	. . . . .	Montreal, Can.



## OFFICERS.

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RUFUS R. WADE,	.	.	.	.	President.
JOHN FRANEY,	.	.	.	.	First Vice-President.
WM. Z. McDONALD,	.	.	.	.	Second Vice-President.
Mrs. M. B. McENERY,	.	.	.	.	Third Vice-President.
ROBERT BARBER,	.	.	.	.	Fourth Vice-President.
ISAAC S. MULLEN,	.	.	.	.	Secretary-Treasurer.
WM. S. SIMMONS,	.	.	.	.	Assistant Secretary.

## ORDER OF BUSINESS.

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Roll-call of Officers.

Calling Roll by States.

Reading of Minutes.

Reports of Committees.

Unfinished Business.

New Business.

Election of Officers.

## PROCEEDINGS.

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NEW YORK, Aug. 27, 1890.

The fourth annual convention of the International Association of Factory Inspectors convened in the Council Chamber, City Hall, at 11.30 A.M., President Rufus R. Wade, Chief Inspector of Massachusetts, in the chair.

The first business being the calling of the roll of officers, the following were present :—

Rufus R. Wade, *President*.

John Franey, *First Vice-President*.

Wm. Z. McDonald, *Second Vice-President*.

Isaac S. Mullen, *Secretary-Treasurer*.

Wm. S. Simmons, *Assistant Secretary*.

On motion of Deputy Inspector Franey of New York the reading of the minutes of the session of 1889 was dispensed with.

The roll was called and the following delegates answered to their names :—

MAINE. — L. R. Campbell, *Chief*.

MASSACHUSETTS. — R. R. Wade, John T. White, W. S. Buxton, Joseph M. Dyson, Joseph A. Moore, J. H. L. Coon, Ansel J. Cheney, Isaac S. Mullen, Joseph Halstrick, John L. Knight, James R. Howes, H. J. Bardwell, E. D. Eldridge.

CONNECTICUT. — Wm. S. Simmons, *Chief*.

OHIO. — Wm. Z. McDonald, *Chief*; John H. Ellis, Evan H. Davis, James A. Armstrong.

NEW JERSEY. — L. T. Fell, *Chief*; John D'Arcy, E. R. White, P. Callan, J. S. Weinthal, P. Coogan, Frank Sayre.

NEW YORK. — John Connolly, *Chief*; John Franey, Francis H. Coe, George H. McKay, Johnson Beers, John Jordan, Hiram Blanchard, Mrs. Alex. Bremer, Julia A. Early, Margaret Finn, Eliza A. Carroll, Electra R. Lockwood, George Schaubert.

PENNSYLVANIA. — Mrs. M. B. McEnery, Mrs. Nan. Y. Leslie.

CANADA. — Toronto, Province of Ontario, Robert Barber; Montreal, Province of Quebec, James Mitchell.

RHODE ISLAND and WISCONSIN, absent.

His Honor the Mayor, Hugh Grant, was introduced to the convention by Deputy Inspector Franey of New York. His Honor briefly addressed the convention, welcomed the delegates to the great city of New York and extended the courtesies of the city, and in fitting words expressed the wish that the meeting of the convention would result in good not only to themselves but the public at large.

President Wade replied in a brief manner, and in the name of the convention thanked the mayor for his kind expressions.

President Wade delivered his annual address: —

GENTLEMEN OF THE CONVENTION: — The ancients had a saying, "All roads lead to Rome"; and, after our annual meetings in Philadelphia, and Boston, and Trenton, it seems that our paths have all converged in this mighty centre of commerce and manufactures, the chief city of the great republic, the business heart of the nation whose pulsations reach through such a vast extent of territory that a line drawn from Eastport to Sitka, would show that San Francisco is the central city, just midway between those extreme limits of boundary.

What stupenduous changes have occurred here since the first President of the United States took the oath of office on this soil. The population of New York city was then but thirty-three thousand, and Washington was inaugurated President of thirteen States. Then, although giving promise of the eminence which she has since achieved, she was not the leading city in population nor in manufactures, and possibly not in commerce. Now, the Empire State—her proud motto, “Excelsior”—is first among the forty-four States of the Union in population and value of manufactured products, and only second in value of agricultural resources.

She is the leader in all classes of manufactured articles including iron and steel, textile fabrics, furniture, glass, wooden ware, machinery, pottery, agricultural implements, watches and jewelry, drugs and hardware. The supremacy of her chief city, as the metropolis of a great nation, the most populous of municipalities, holding the keys to the gateway to the Atlantic Ocean, through whose channels sixty per cent. of the foreign trade of this country annually passes, representative of the dignity, grandeur and power of a government framed for the protection of the rights of free men, is as unquestioned as it is significant.

Coming from other sections of the country we are glad to admit also, that in the extent and wisdom of her benevolence, New York stands at the head of American cities. Chief among your educational institutions, we, strangers within your borders, are glad to name the world's famous Cooper Institute, for the free education of the working classes. How noble the work which it has done, and how perennial the benefits which flow from the splendid gift of Peter Cooper. The vast tide of immigration, that finds here its chief inlet, presents problems that perplex the wisest statemanship. Is our power of assimilation equal to the demands made upon it? In this free land, we shall have no quarrel with those who come here in good faith, with an honest intention to obey the laws and respect the institutions of the land which offers them a shelter, and provides them with opportunities for gaining a living. Our factories and workshops give employment to multitudes who have found here the better chance denied them in the country from whence they came. As inspectors we know something of the vast and varied industries that rely on daily labor, more or less skilled of a countless army.

It is within the memory of the youngest member of this convention, that the operative and workman, whether man, woman or child, fought out the battle of protection to his individual interests without co-operation of his fellows, and without legislative sanction in any form.

In England, and in a few other countries beyond the sea, some attempts have been made to improve the condition of operatives in



factories, before any well-directed movement had been started in this country. But what a revolution in such matters has been accomplished in large sections of our land during the present generation. Those of us who have been longest in the work of inspection can but realize the immense strides that have been made in this department of statutory law.

The scope of our employment is continually being enlarged by legislation based upon the demands of accumulating experience. It is now generally recognized to be the duty of the State to afford all possible protection to the laborer in the factories and workshops exposed to preventive evils and injuries. I well remember the prevailing impression when the law was passed limiting the hours of labor of women and minors in factories. It was generally felt that but little remained to be done, because, as it seemed, so much had been accomplished.

The agitation which led up to the law limiting the hours of labor was so prolonged and intense, the resistance which it met was so sharp and uncompromising, that when the law was finally passed it almost seemed that for a generation not much more could be asked nor expected. But the logic of events was more convincing, the necessities of the situation more exacting than the plans of those who led in that great movement.

It was like the incoming tide whose approach is first seen in the ripples that break against the outer line of your harbor, but in due time with quiet but resistless force fills every inlet.

In my previous addresses as president of this body, I have discussed somewhat in detail, specific duties imposed by law upon factory inspectors, and I have called attention to the advance that has been made by legislation, in the interests of the people employed in factories and workshops. If I have been somewhat critical of methods that have not approved themselves to my judgment, I have tried not to lose sight of the more important features of our work, and to encourage each member of the convention to give us the benefit of his personal wisdom and experience.

Since our last session an important change has been made in the laws of Pennsylvania and New York, in providing for the appointment of a certain number of women as factory inspectors. The same subject has been agitated in Massachusetts, but no action has been taken. It is known that some of the women appointed in the two States named, possess peculiar qualifications for certain duties of factory inspection in which the comfort and health of their own sex are concerned. Many of the women indicated have been long identified with the study of industrial questions, and they may be regarded as well qualified by experience and sympathy for the faithful discharge of their new duties. Time will determine whether the change is one that

may be inaugurated elsewhere, and in the meantime we anticipate the best results.

I have had no reason to complain of the support that has been accorded to me as your presiding officer, and I do not intend now to detain you with a discussion of familiar subjects, but I am anxious to call your attention to the far-reaching benefits that have occurred to all our people, by reason of so-called labor and sanitary laws, and the faithful and impartial enforcement of them, by our factory inspectors.

A vivid illustration of this is seen to-day in Massachusetts, in the matter of ventilation of school-houses, factories, workshops and other public buildings. It is but a short time since our Legislature was made to see the imperative necessity of providing against the evils and perils of foul air and defective drainage in buildings of the class to which I have referred. When public attention was fully aroused, and expert sanitarians gave us conclusions based upon careful examinations, the remedy was speedily applied, and our late statutes in relation to drainage and ventilation, require much of the time of our inspectors for their enforcement.

But another advantage follows,—the subject of ventilation of public buildings has been so thoroughly discussed, in the committee rooms, in the Legislature and in the newspapers, that the people of our Commonwealth understand its importance to health and life as never before. Not a city or town in Massachusetts at this time will tolerate for a single day, a state of things in respect to ventilation, that was so common a few years ago that it did not excite remark. We know now by the testimony of competent authority what conditions of sanitation are essential to public welfare. There is no room for doubt or speculation as to sanitary requirements. Our people have been educated to an appreciation of its importance, and to an understanding of its details. That battle has been won in our Commonwealth for all time. I doubt if the full significance of that legislation has yet dawned upon our people.

It is an advance that never will be lost or abandoned. The effect upon coming generations it would be impossible to exaggerate. Consider, you that are familiar with the former condition of things, in our school-houses, for instance, what must it mean to thousands upon thousands of our children to escape the discomforts and dangers of bad drainage and foul air in our school-rooms. To the multitudes of all ages, to secure the best possible surroundings within which to earn their daily bread.

Nor can any man adequately state the far-reaching influences of such legislation as the so-called ten hour law. To say that shortening the hours of labor gives needed leisure time to the operative, encourages

self culture, affords additional opportunity for national recreation, and thereby improves the condition of the wage-earner throughout the land, seems like exhausting the catalogue of good results. But it does not take into account the fact that the worker becomes more a man and less like the machinery among which he toils. A self-respecting, more contented, aspiring citizen of the land which has placed its protecting arm around him, and thereby won his faith and loyalty.

Nor does it estimate the tendency of such a law to broaden and elevate all subsequent legislation, and to raise the whole community to a higher level. What makes the might or grandure of a State or nation? It is not its wealth in farms and stores, in factories and shops, its overflowing treasuries and matchless armies, but its men and women of lofty purpose, noble deeds and sterling characters. The great mass of our population in America belong to the industrial class. What is gained by them in comfort, health, contentment, leisure and prosperity, is your gain and mine, and the whole nation's. Our duties as inspectors may be performed in a negligent and perfunctory manner, or with the high purpose which sees in the prosperity and happiness of the toiling millions, the steady advance of our common humanity.

If we do our part in making our respective States cleaner and safer, there will be better homes for the wage earners. We shall have less to regret when we are required to give an account of our earthly stewardship.

And now, gentlemen, as I am about to retire from this office to which you kindly chose me at your first session, I should not deserve your continued respect if I failed to acknowledge your uniform courtesy and forbearance. And I bespeak for my successor the like cordial support, to the end that our sessions may be instructive and harmonious, and that our transactions may secure the respectful considerations of our official superiors. Again thanking you, I am ready, at your pleasure, to take my place in the ranks, and unite there with you in such work as the future may assign to my lot.

Chief McDonald of Ohio moved that a committee of three be appointed, to make such rules as would have a tendency to expedite the business of the convention.

The following committee was appointed: Chief William Z. McDonald of Ohio, Chief L. T. Fell of New Jersey, Chief John Connolly of New York.

The secretary made the fourth annual report.

*To the National Association of Factory Inspectors of North America.*

GENTLEMEN:— I have the honor to submit herewith the fourth annual report as secretary.

Since the organization of the National Association of Factory Inspectors, its benefits and the results arising therefrom have been demonstrated by the great good that has emanated therefrom in the various States where inspectors and inspection laws exist. Much has been accomplished by an interchange of views which have been presented at the various conventions that have been held in the past.

At the first convention held in Philadelphia, five States were represented,— Massachusetts, Ohio, New Jersey, New York and Wisconsin. Connecticut was represented by the Board of Education of that State. At the convention held in Boston, seven States were represented,— Massachusetts, New York, New Jersey, Ohio, Connecticut, Maine and Rhode Island. Illinois and Wisconsin were not represented.

At the convention held in Trenton, N. J., six States were represented,— Massachusetts, Maine, New Jersey, Ohio, Connecticut and New York, Rhode Island and Wisconsin absent.

Since the last meeting of the convention, I have been informed by the secretary of the Bureau of Statistics, that there are no State inspectors of factories in Illinois, but that there is an inspection department of tenements in the city of Chicago coming under the supervision of the Board of Health of that city. I have been unable, after much correspondence, to obtain any information that I could present to the association.

The inspection department of Pennsylvania has been thoroughly organized, judging from the synopsis of the report of that department of duties performed by the inspectors.

After much care the proceedings of the last annual convention were compiled. One thousand copies ordered and printed at a cost of thirteen and one-half cents each. The various departments were furnished, the number required at the above cost. In order that the outside demand might be supplied fifty additional copies were obtained, at a cost of twelve cents each, which were sent to various individuals, colleges and institutions.

The assessment of \$5 from each department was duly received and acknowledged, the total being \$30.

Nearly two hundred letters have been received from various persons from all sections of the country relating to inquiries of inspection laws and other matters.

Nearly three hundred letters have been written to various persons, in answer to inquiries of matters of various kinds.

There has been received by the secretary for use in his department the sum of \$30. There has been expended \$28.75, leaving a balance of \$1.25.

The resolution to engross a suitable testimonial to be forwarded to the late secretary, Henry Dorn, was complied with by the present secretary, and its receipt by late Secretary Dorn acknowledged.

Papers from the various departments will be read before the convention. From communications from two or three departments I have been informed that, on account of much work that has to be done, it has been found impossible to prepare papers upon any kind of subject whatever. The arranging of papers, and the subjects to be read, being an experiment it is hoped that the idea will be a good one, and that the incoming officers will not depart from it.

My predecessor—and I feel it an honor to be able to quote from him—said, "That he hoped that these annual meetings would grow in importance and interest each year, and it was confidently believed such growth would result in incalculable benefit to all concerned,—to the employer as well as the employee, and to the public at large."

I believe, gentlemen, that those sentiments meet with your combined approbation, and that it will be your aim to benefit those of the employer, employee and the public at large.

ISAAC S. MULLEN,  
*Secretary-Treasurer.*

On motion of Deputy Coe of New York the convention adjourned, to meet at three o'clock P.M.

ISAAC S. MULLEN,  
*Secretary.*

NEW YORK, Aug. 27, 1890.

Convention called to order at three o'clock P.M.

President Wade in the chair.

Committee on rules presented the following:—

1. The chair shall appoint a committee of five on resolutions.
2. Any person wishing to offer a resolution shall present the same to the committee on resolutions in writing.
3. The number and length of sessions shall be controlled by the following papers and discussions on the same, and shall proceed as follows.

4. Deputy Coe of New York to read a paper on "Compulsory Education in the State of New York."

5. Deputy John D'Arcy of New Jersey to read a paper on "Compulsory Education."

6. Inspector A. J. Cheney of Massachusetts to read a paper on the "Ventilation of School-houses and Public Buildings." Discussion.

7. Inspector Campbell of Maine to read a paper on the "Restriction of the Hours of Labor." Discussion.

8. Deputy Mrs. Alex. Bremer of New York to read a paper on "Women Factory Inspectors; their Usefulness." Discussion.

9. Inspector Evan H. Davis of Ohio, a paper on "The Protection of Elevators and Hoistways." Discussion.

10. Inspector J. H. L. Coon of Massachusetts, a paper on "Ventilation practically considered." Discussion.

11. Inspector J. S. Weinthal of New Jersey, a paper on "Model School Buildings."

12. Chief Wm. Z. McDonald of Ohio, a paper on "The Construction of School Buildings to protect Children from Dangers of Fire." Discussion.

13. Inspector Joseph A. Moore of Massachusetts, a "Description and Explanation of Fire-extinguishing Device."

14. Inspector John H. Ellis of Ohio, on the "Speed of Elevators." Discussion.

15. Inspector P. Callan of New Jersey, on the "Practicability of quickly stopping Machinery in Case of Accident." Discussion.

16. Inspector Frank Sayre of New Jersey, "Accidents in Factories." Discussion.

17. Deputy George A. McKay of New York, on the effect upon the "Health, Morals and Mentality to labor in Our Crowded Work-rooms."

And any other business that is necessary to come before the convention.

On motion, the rules as read were adopted.

Deputy Coe of New York read the following paper on  
 “Compulsory Education :” —

#### COMPULSORY EDUCATION.

MR. PRESIDENT, LADIES AND GENTLEMEN : — I have been designated to speak to you on the important subject of “Compulsory Education in the State of New York,” and, while I regret that the task was not committed to abler hands, I shall endeavor in the time allotted me to present such facts and opinions as appear to be pertinent and suggestive. The subject has attracted the attention of thoughtful social reformers and educators for many years, but it was not until 1874 that legislation was procured with the view of checking the flood of illiteracy which was even then exciting serious alarm, and which, it is painful to say, appears to be gaining head instead of receding. The principle is not new by any means, despite the clamors of interested opponents who denounce it as a crankish and theoretical piece of interference with the right of parents to do as they please with their children, even to condemning them to lives of ignorance and careers of degradation, vice and crime. I well remember arguments to this effect employed by one of the foremost journals of the State when the bill, which is now known as “Chapter 421 of the Laws of 1874,” was pending in the Legislature, and even to-day, when the law is occasionally enforced in the cases of minors under the age of fourteen years found working in factories, the bitterest denunciations are launched against the statute, its authors and those who put it in force.

Compulsory education was enforced by the Spartans, for example, more than two thousand years ago, with a rigor inconceivable in our age, on the ground that the life of each individual belonged to the State, and therefore all should be equally well trained in the principles of citizenship. The result was to make of Sparta an invincible republic, and to invest its name with immortal glories. Coming nearer to the times in which we live, we find that so long ago as 1763 the principles were adopted in Germany, and we all know that it prevails there to this day. More than a century elapsed before it was taken up in Great Britain, when it was crystallized into legislation after a long and arduous debate in Parliament and in the press. This was in 1870. Two years later France followed the example of her insular neighbor; and, in short, Europe generally legislated in favor of compelling the attendance of children upon school between specified ages and at specified times.

State Superintendent of Schools Draper, in an admirable article on the subject, points out that “All constitutional governments recognize the necessity of looking after children and seeing that they go to

school. Half the States in our Union have now allowed this principle, and legislated to enforce it. . . . Even in Italy, Spain and Portugal the government compels children to go to school. It legislates, and it spends money to make legislation effectual. Not only *some* children, but *all* children within prescribed ages, and at specified times, must be in school. Parents and guardians who ignore or defy the law are punished until they understand it and mind it. If children need food and clothing, it is provided. If they are covered with filth or are ungovernable, they are taken into institutions and washed, combed, fed and disciplined." And then he most pertinently asks, "What reason have we for thinking that we can ignore this duty with impunity? Why must *they* do it and *we* not?"

We have no reason, and the duty is as incumbent upon us as upon the people of nations which we, in our bumptious self-sufficiency, are wont to regard as backward, and even retrograding in the scale of enlightenment. What reason have we for thinking that we can ignore it when we find that very able and conservative paper, "The Boston Journal," quoting a woman inspector of charities as follows:—

"A sad surprise is the widespread illiteracy of the factory workers. It is safe to say that a majority of them, although born in this country and speaking English well, are unable to read and write. It is a simple thing for an unscrupulous employer to do as he pleases with these people."

And what is true of the factories of Massachusetts, the State in which the principle was first made into law in this country, is unhappily true of too many of those of the Empire State also, I am grieved to say.

The agitation to overcome the evils flowing from the non-attendance of children upon schools began in this State more than thirty years ago. There had been laws passed for the repression of truancy and vagrancy, but their operation amounted to little or nothing, *for laws will not execute themselves*. The movement in England, which culminated in 1870 in the compulsory education system now in force, stimulated the educational reformers of New York to renewed activity, and in 1871 a bill was introduced in the Legislature which incurred at once the fiercest hostility. So able a man as State Superintendent Rice enlisted all his talents against the measure, holding that the problem could best be solved by the employment of better teachers and the provision of more attractive school-houses. Another antagonist was Superintendent Weaver, who took the ground that the bill was diametrically opposed to the spirit of our republican form of government. It was argued by the opponents of the scheme that it proposed unwarrantable interference with "the liberty of the family," as if in a country with a government based on free institutions such as ours any family has a right to allow its members to grow up in ignorance and vice, and as dangerous elements in a community whose foundation stone is universal intelligence and public virtue.



There are some here, no doubt, who remember how fiercely the discussion raged in the Legislature, the press and the pulpit, and how for three years the bill was fought with a persistency worthy of a better cause. But all the great moral forces of the State eventually became enlisted on its side, and in 1874 it was passed and became a law by the signature of Gov. John A. Dix, of famous memory, himself a distinguished educator and once State Superintendent of Education.

The law amended by the Legislature of 1886 is now in force, but, with the exception of some of the larger cities of the State, in name only. Superintendent Draper asserts that it has never availed much, and I am compelled to agree with him. One of the chief defects of the law in failing to afford the benefits which were expected of it is that its remedies are inadequate, and that it makes no suitable provisions for its enforcement. This is a very common defect with most reformative legislation: its authors fear to go far enough; they enact laws and expect that they shall enforce themselves, which is one of the greatest fallacies imaginable, because human nature does not willingly change bad habits, customs and prejudices, at the dictate of the law-making body, especially when that body takes no steps to cause its decrees to be respected.

Briefly stated, the law enacts that all guardians, and those who have the care of children, shall instruct them, or cause them to be instructed, in spelling, reading, writing, English grammar, geography and arithmetic. All such persons having control of children between the ages of eight and fourteen years shall cause them to attend some public or private day school at least fourteen weeks of each year, of which at least eight shall be consecutive, or to be instructed regularly at home at least fourteen weeks in each year, unless the physical or mental condition of any child be such as to render such attendance or instruction inexpedient or impracticable. Children under the age of fourteen are not to be employed by any person to labor in any business whatever during the school hours of any school day, of the school term, unless they have attended school fourteen weeks of the fifty-two weeks next preceding any and every year in which they shall be employed, and produce a certificate to that effect. Any person employing any child in violation of this provision is liable to a fine of \$50. Boards of education and school trustees are directed to yearly examine, in the month of February, and at such other times as may be deemed necessary, into the situation of the children employed in all manufacturing and other establishments in each school district, to ascertain if the provisions of the law are being carried out, and report all violations thereof to the treasurer or chief fiscal officer of each city or the supervisor of the town. Proprietors, superintendents and managers are required to present on demand to the examining trustees a correct list of all children of school

age employed by them. Parents and guardians of children between the ages of eight and fourteen years, who have been temporarily discharged from employment in any business in order to be afforded an opportunity to receive instruction, shall send them to some public or private day school, or cause them to be regularly instructed at home for the period of the discharge, to the extent of at least fourteen weeks in each year. The trustee, or trustees, of any school district or public school, or the president of any union school, or such officer as may be designated by any board of education, is authorized to enforce the provisions of the act and report all violations in writing to the treasurer, or chief fiscal officer of his city, or the supervisor of the town. Any person who shall violate any of the provisions of sections 1, 3 and 4 of the act shall, on written notice from one of the school officers above named, pay to the treasurer, or chief fiscal officer, or supervisor of the town in which he resides, the sum of one dollar, and after such first offence shall, for each succeeding offence in the same year, forfeit and pay the sum of five dollars for each and every week, not exceeding thirteen in any one year during which he, after written notice from the school authority, shall have failed to comply with any of the provisions of the law, and these fines are to be added to the public school money of the district in which the offence occurred. Indigent children are to be supplied with text books free. Children who are given to habitual truancy shall be turned over to the school authorities on a written statement of the case to be dealt with as habitual truants, and those in charge of them shall be relieved of penalties under the act for the year involved. Boards of education are empowered to make needful rules and provisions concerning habitual truants and children between the ages of eight and fourteen years who may be found wandering about the streets and public places during the school hours of the school day, having no lawful occupation or business and growing up in ignorance. They shall make such provisions, regulations and rules as shall, in their judgment, be best conducive to the welfare of such children, and shall provide suitable places for their discipline, instruction and confinement when necessary, and may require the aid of the police authorities to enforce their rules: *provided, however*, that the rules shall not go into effect until they have been approved in writing by a justice of the supreme court. Justices of the peace, civil justices and police justices shall have jurisdiction within their respective towns and cities of all offences and of all actions for penalties or fines prescribed in the act, or that may be described in the rules for the correction of truancy. All actions for fines and penalties are to be brought in the name of the treasurer or chief fiscal officer of the city, or the supervisor of the town, to whom the same is payable, but shall be brought by or under the direction of the trustee, or trustees, or officer designated by the Board of Educa-

tion. It is also provided that two weeks' attendance at a half time or evening school shall for the purposes of the act be counted as one week at a day school.

This is, in sum, the compulsory education enactment of the Empire State. Deemed almost revolutionary at the time of its inception, it has proved far less of an aid to the cause of education than its friends expected it would be. The present State Superintendent of Education, Judge Draper, says, in his report for 1889, that the law is not efficacious, and flatly declares that it never will be. I quote his words:—

"It does not go far enough, and it is without an executor. It is barren of results. In 1870 the number of children enrolled in the public schools of the State was sixty-nine per cent of the children of school age, that is, five and twenty-one years; in the last year it was but fifty-eight per cent. It may be safely said that no system will be effectual in bringing the unfortunate children of the streets into the schools which at least does not definitely fix the age within which children must attend the schools, which does not determine the period of the year within which all must be there, which does not determine the method for gathering all needed information, which does not provide especial schools for incorrigible cases, which does not punish people charged with the care of children for neglecting their education, and which does not provide the machinery and officials for executing the system."

These conclusions were forced upon the State superintendent by incontrovertible facts, to whose regrettable existence I am prepared to offer my personal testimony from the experience gained in the prosecution of my duties.

In the city of my residence, Buffalo, I am happy to say that the law is enforced to the full extent of the powers of the superintendent of education. Two compulsory education examiners are in constant employment, and they are well upheld by the police justice in actions taken against offenders; but in a city with a school attendance of some thirty thousand, and with some two thousand factories, most of them employing young people, it must be obvious that it is impossible for two men to cover the ground adequately. It is also very difficult to deal satisfactorily with incorrigible truants. To send them to the reformatories is to consign them to ruin, body and soul, in the opinion alike of the superintendent of education and the police magistrate. The superintendent, James F. Crocker, has repeatedly urged the common council to authorize the construction of a truant school which would combine industrial with educational features, but, as is too commonly the case, the representative civic body does not concern itself to any great extent with school matters, and compulsory education is not popular with aldermen, as a general thing. Perhaps if it were we might have a better breed of aldermen. The subject has been allowed to drop to the ground, not one of the least

of the arguments urged against it being that if all the children running around were compelled to go to school the taxpayers would be obliged to go down into their pockets to build more school-houses. Yet it is the melancholy fact that to-day Buffalo, which has in the past few years expended nearly a million dollars on new schools and has sixty-eight schools now in commission, is behind three thousand in accommodation for her actual school population, while the city of New York is twenty thousand behind.

Both New York and Brooklyn have endeavored to carry out the purposes of the law, but under grave difficulties. The reports of their school departments give interesting figures, which I forbear to quote as time is pressing. Outside of the cities the law is practically ignored.

I believe that the best aid to compulsory education that the State has had, has flowed from the operation of the factory inspection law. The authority which has been given the inspectors has been highly efficacious in weeding the factories of thousands of children employed when they should have been at school, and kept toiling year in and year out, in sordid and hopeless ignorance, degrading the standard of wages by their competition with adult labor and abasing the scale of manhood by their intellectual degradation. The results of the compulsory education law being allowed to fall into abeyance are nowhere more evident and painful than in the mills and factories of the State, nor, I may say in those situated in regions which *plume* themselves upon their superior goodness and freedom from the vices of the great cities, so good indeed, that the exercise of State authority to do that which local authority had neglected or been afraid to do was resented as a wanton outrage on the rights of parents to sweat money out of the wages of their infants, and factory lords to rise to still greater affluence out of the proceeds of child labor. In the report of the factory inspectors for 1887 you will find between pages 49 and 56 some valuable information on this head. The terrible evils which have grown out of the lapse of the law into a dead letter have not escaped the attention of the educators of the State. In the legislative session of 1888 a bill prepared by the city superintendents of education, and embodying many of the features shown by experience to be necessary, was prescribed, and earnest hopes were entertained that it might become a law. But these anticipations were doomed to failure, for while the bill was favorably reported by the committee on education it met with death in the committee on the whole which was a great pity, for the measure was a comprehensive one, and aimed at remedying those defects in the existing law which are obvious and demoralizing. Though the bill failed, however, the idea which is behind it is still alive and is being fostered by the superintendents of education throughout the State, who mean to bring it up again and again, until they are able to claim a victory for one of the noblest and

most elevating of causes, and one in which the highest interests of the Commonwealth are bound. I presume the conflict will be a long and bitter one, for there is plenty of fossilism still rampant, and there are thousands of men who, for all their boasted enlightenment, would as soon see the devil abroad as the school-master, but the principle at stake is righteous and true, and in the long run it must prevail. The best thought of the community is upholding the men who are agitating for compulsory education reform, and, needless to say, the enlightened labor of New York is for it to a man.

On motion of Inspector Ellis of Ohio the paper of Deputy Coe was received.

Inspector D'Arcy of New Jersey followed with the following paper on "Compulsory Education :"—

#### COMPULSORY EDUCATION.

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE CONVENTION :—  
The statement that education is the chief safeguard of our liberties has become a platitude, from oft repetition. Every intelligent mind recognizes the fact that the beneficence, wisdom and purity of our law-making bodies fluctuates with the intellectual status of the people; that the prevalence of education is a bulwark against which the seas of corruption may beat in vain; and that where ignorance holds sway, corruption flourishes in all forms. For the intelligent man is an intelligent voter incapable of being intimidated or influenced in the exercise of his right of franchise. The intelligent voter elects the intelligent legislator, and the intelligent legislator knows that his preference depends upon his honesty, and his acts are in accordance therewith. This being true the necessity of educating the masses becomes apparent.

In the early stages of our history the only difficulty to be overcome in diffusion of knowledge was the lack of educational advantages. In a new country whose heterogeneous population had ever and only before them the acquisition of wealth and untrammelled freedom, it is but a small wonder that we find few school-houses and fewer capable instructors. But what was lacked in knowledge was supplied in zeal for its acquisition, and in a short time, through the untiring diligence of our forefathers, and their wise legislative enactments, compelling every township to support a school, our country became dotted with these strongholds of intelligence and morality. But an increase in the population of our country brought with it changed conditions of life.

The early settlers of our country were engaged principally in agricultural pursuits. To such a people the winter was a season of forced

inactivity, and this opportunity of educating the children was not neglected by the provident farmer. But in the growth of our country came diversified interests; manufacturing in all its forms engaged the attention of our people, and as a necessary evil, which inevitably accompanies a dense population, the struggle for existence was aggravated. Every nerve and sinew must be strained in our large cities to hold together the soul and body, and thus a premium is placed on child labor. The winter was no longer a season of respite from toil, but summer and winter alike the never ceasing struggle for the means of subsistence must be kept up. The little mite which the children can earn is magnified by poverty, and the advantages of an education on the other hand are entirely lost sight of.

As we have seen in the agricultural period of our history the only inducements necessary to the spread of education was the diffusion of school-houses. Willingly did the farmer of the early part of the nineteenth century send his children during the winter months to the district school, but the mechanic of the latter half needs some further inducement than the mere erection of a school-house within his sight. What shall it be?

The Legislature of New Jersey made an effort to solve the question in 1885, when they had enrolled upon the statute books the compulsory education law.

We say made an effort, because in some of the large cities of New Jersey the municipal authorities fail to furnish adequate accommodations to educate the children; they thus have the effect of nullifying the law, and to-day it lays on our statute books a dead letter, as a general compulsory education law, for it depends solely on the municipality, the opportunity of enforcing the law.

We need the enforcement of this law for several good and efficient reasons. The first and primary one is the safety of our government requires it. It is no chimerical fantasma that leads men to say that education is a protection against political corruption. It is a hard and fast fact; go to any of the polls in your city during an election, and you will have ample evidence of the truth of this statement. It is not the educated voter whom you will see casting his vote at the dictates of others, but the illiterate whose pride and honor of the right of franchise he values not. But leaving out this argument there are still left better reasons for the enforcement of the law. Morality demands it. The man who, during his youth, has been forced to grind the vitality out of his young life, becomes warped and narrow, his intellect is bounded by the walls between which he labors, his associates are of the same character, and his animal nature predominates, and, as a result, he becomes a vicious and dangerous citizen. There are exceptions to this rule, but they merely give force to the argument by contrast. They

crowd our jails and prisons, they make our drunkards and criminals of all grades. Their ideas of the law and of obedience to it, would be laughable if they were not so dangerous.

The enforcement of the compulsory education law, however, would not be a panacea for all the ills and crimes, to claim so much for it would be folly. But if illiterates compose the majority of our criminals, would not a proper educational law strictly enforced materially lessen the calendars of our criminal courts?

Then, again, we are enforcing the child-labor law, we are turning the children out of the factories who are too young to work, and by the non-enforcement of the educational law we throw them on the streets, which hastens the spread of crime among minors, and paves the way for a life of lawlessness and vice. These are only a few of the many arguments in favor of the enforcement of compulsory education laws, but they are general in their character.

Let us consider the objections that are held by some to the enforcement of such a law. It is not practicable to enforce it. What is there impracticable about it? True it is impracticable, and impossible to compel a child to attend a school if you have no school for him to attend. But with ample facilities there is not the slightest flavor of impracticability in the law.

The provision of proper school facilities for the education of our children should be imposed upon us whether we enforce the law or not.

It is true the enforcement of the law will necessitate the increasing of the school facilities, thus increasing the cost of maintaining the school system; but is this not just, if provision is to be made for the free education of one child, does not impartial justice demand that we provide for the education of all? Are we to discriminate between one child and another? It would be tyranny of the worst type to erect a school-house in which only one-half of the children of the district could be educated, while the other half would grow up in ignorance and vice. If education is to be free let all be educated, both the willing and obdurate.

The provisions of adequate schools and the enforcement of the compulsory education laws will inevitably result in a higher standard of intelligence and morality among our youth, and aid in the work of governing our great republic since it would improve the standard of our population.

On motion, Inspector D'Arcy's paper was received.

Discussion on the subjects read was opened by Inspector Davis of Ohio, who spoke on the matter with much force and read extracts from the laws of Ohio referring to education in that State.

Inspector Buxton of Massachusetts made some very pertinent remarks on the subject of compulsory education. .

Chief Connolly of New York, in speaking on the subject, remarked that the people are looking to us as inspectors to give better enforcement to the laws ; that some differ in New York State about a compulsory education law. Religion was a barrier in the way as well as many other things and a law could not be passed. There should be a uniform law in all the States relating to this matter.

Inspector Weinthal of New Jersey spoke on the subject and referred to the matter of compulsory education in New Jersey. He was followed by Inspector White of the same State.

Deputy Commissioner of Labor Campbell of Maine said that he thought that night schools were not the thing for children who had toiled all day, as it were, in factories and workshops.

Chief McDonald of Ohio spoke briefly on the same subject and to the point.

Chief Fell of New Jersey and Inspector Dyson of Massachusetts gave utterance to their sentiments, which were interesting and beneficial.

Deputy Franey of New York moved that the papers on compulsory education be referred to the committee on resolutions.

The following telegram from the late secretary, Henry Dorn, was read: "Send greetings to convention; may success crown our efforts, my honest wish. Henry Dorn, Columbus, O., Aug. 26, 1890."

A letter was read from R. O. Smith, secretary of the Council of Engineers, asking to be heard in a matter which they would like to present to the convention. Referred to the committee on general business.

Inspector White of Massachusetts read a paper on "Recent Improvements in the Ventilating of School Buildings," and gave explanations on the blackboard.



The paper read is as follows : —

• **MR. PRESIDENT AND MEMBERS OF THE CONVENTION :** — At the meeting of this association at Trenton, last year, I had the honor to be selected to prepare and read a short paper on the ventilation of school-houses. At that time the recent act of the Legislature requiring better means of ventilation in such buildings, and the action taken by the State inspectors in the enforcement of that statute, together with the reports of the State and local boards of health, and particularly that of the Board of Health of Boston upon the condition of the schools in that city, had brought this question prominently before the people of Massachusetts. While a large majority of the people may be said to have been convinced of the importance of the subject, and in a general way to be satisfied that something should be done by way of improvement, very few had any practical knowledge of the matter or any definite idea of what could be done; and there were many who thought that the opinions of experts as to the amount of air required for good ventilation, and the recommendations of the State inspectors based upon such opinions, were extravagant and likely to lead to useless expenditure. We were even told by some that the evils of impure air in our school-rooms were greatly exaggerated, that they were as well ventilated as they ever had been, — which was true enough, — that if impure air would kill us we should have been dead long ago, and that the requirements of the State officers were unreasonable, needless and impracticable.

When the Board of Health of Boston stated in their report that to keep the air pure and odorless in a school-room would require a supply of fresh air of 50 cubic feet per minute for each scholar, there were plenty of men in the business of heating and ventilation who were ready to declare that no such amount of air could be heated and introduced into the rooms at any reasonable cost, and that it could not be circulated in the rooms without producing disagreeable draughts. At that time arguments to show the importance of pure air for our children and the necessity for a large supply of it seemed to be not out of place, and a large part of my remarks were devoted to that purpose.

Until the passage of the law of 1888 very little improvement had been made in the ventilation of our school-buildings. In fact most of the school-houses built within the last ten years are no better ventilated than those built forty or fifty years ago. Even where improvements had been attempted, failure usually resulted, many times in consequence of a blind following of long exploded theories. It may be fairly claimed that much of the improvement in recent work is due to the fact that the State inspectors of buildings, in enforcing the new law, discarded all schemes and theories of interested parties, and tested all methods of ventilation by the standard of undoubted scientific authority. The two

years' work done since the passage of the law has conclusively shown the fallacy of many of the old theories.

That we can supply our school-rooms with an amount of air greater even than the requirements of the Boston Board of Health, and thoroughly circulate that amount in the rooms without the slightest inconvenience to the inmates, is as well proven as any fact can be. The necessity of a large amount of fresh air and the practicability of obtaining it are fast coming to be universally admitted. Nor is the fear at first entertained of an enormously increased expense likely to be realized. Good ventilation costs money undoubtedly, but the expense of the new methods, as compared with the old, is more with the first cost of the appliances than with the cost of supplying and removing the air after such appliances are put in. •

A little calculation will show that the cost of maintaining the heat in a room by introducing 2,000 cubic feet of air in a given time, instead of 1,000 feet, is not so great as would at first appear. Suppose, for instance, that with the outside air at  $30^{\circ}$  it requires 1,000 cubic feet of air to be sent into the room, in a certain time, heated to  $150^{\circ}$  in order to keep the room at  $70^{\circ}$ . Then, if 2,000 feet is sent in in the same time, it will only have to be heated to  $110^{\circ}$ , as expressed by the formula:  $x = \frac{a}{b}(t - d) + d$ , where  $a = 1,000$ ,  $b = 2,000$ ,  $t =$  temperature to which 1,000 feet of air is heated,  $d =$  temperature of room,  $x =$  required temperature of 2,000 feet of air. 1,000 feet of air raised  $120^{\circ} = 120,000$  feet raised one degree, and 2,000 feet raised  $80^{\circ} = 160,000$  feet raised one degree; an increase of only  $33\frac{1}{3}$  per cent. This calculation is based on the assumption that no more heat is lost in the room in one case than in the other, and that the same amount of heat will be recovered from the furnace plates by passing two feet of air over them instead of one foot in the same time.

I have been unable to find reliable statistics bearing directly on this point, but it is claimed by experts, who ought to know, that there is a gain in both respects in using the larger amount of air. Within certain limits I think this claim may be well founded. There is always a leakage of air from a room, and if this leakage takes place from air at  $150^{\circ}$  it is evident that more heat will be lost than if it is from air at  $110^{\circ}$ .

At an inspection of a school-room made last winter on a day when the thermometer outside stood at  $20^{\circ}$ , with a good breeze blowing, I found the valve in the cold-air box two-thirds closed, as the janitor said he could not keep the rooms warm if he allowed more air to come in. The temperature of the air in one of the rooms at the inlet was  $180^{\circ}$ , and the velocity 180 feet per minute. The temperature of the room was  $70^{\circ}$ . I went down to the cellar and threw the cold-air box wide open, the janitor protesting meanwhile that I should certainly freeze the children. On my return to the room the thermometer at the register had fallen to

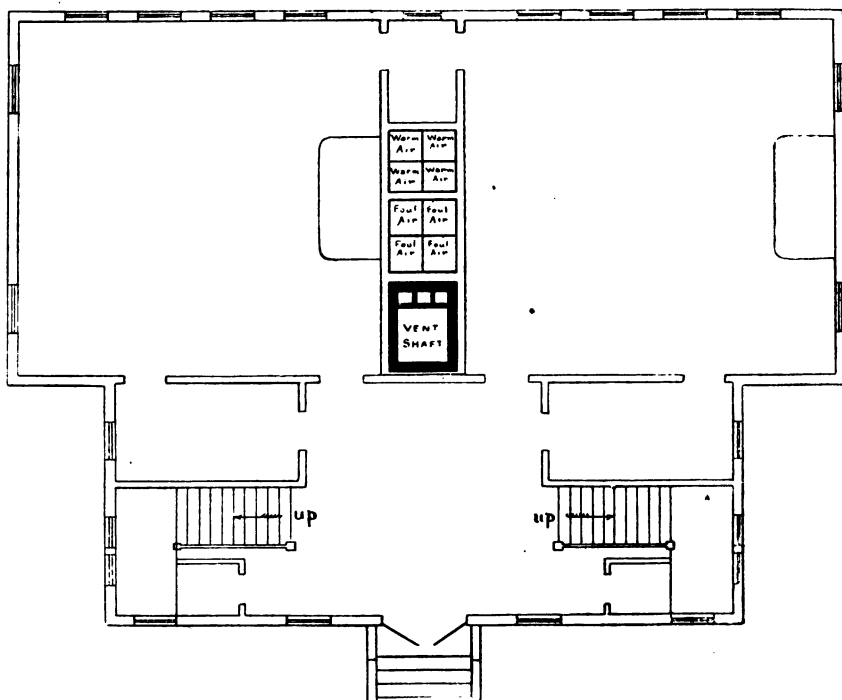
110°, but the velocity of the air had increased to 400 feet per minute. In about fifteen minutes the temperature of the room had fallen to 67°, where it remained. No change was made in the furnace in any way. It will be readily seen that a very slight increase in the temperature of the incoming air would have kept up the temperature of the room, and that the amount of air supplied might have been double what I at first found it without any increased expense.

There are strong indications that the coming ventilation is to be mechanical. The facility, certainty and economy by which exhaust fans or blowers can be operated in moving air, and the remarkable improvements in the methods by which machines of small power — and especially electrical power — can be utilized to drive such fans, all point in that direction; but for smaller buildings, and in those remote from sources of power the work will be done, as now, by what may be called natural as opposed to mechanical ventilation. It is with a view of showing in some degree what has recently been accomplished by way of improvement in this direction, that I have been requested to prepare this paper.

This improvement has not been made by any radical change in the means of heating the air but by largely increased facilities for supplying it to the rooms and of removing it when no longer fit for respiration. Where a 12" or 14" pipe was formerly used to convey the air from a furnace to a school-room, a duct having an area of 4 to 5 square feet is now employed; and in place of a 6" x 8" register leading to a cold pipe in the wall, in which there was seldom any movement of air, ducts with areas of 5 square feet now lead from each room to a flue or chimney in which a strong movement of the air is kept up by the application of heat. The amount of air entering the rooms from the heating appliances having been immensely increased, its temperature has been correspondingly reduced.

In twenty-five observations made last winter of the movements of the air at the inlets to the rooms from furnaces and steam coils as usually arranged I found the average velocity to be about 250 feet per minute and the average temperature to be 160°. The same number of tests made on improved appliances recently put in gave an average velocity of over 400 feet per minute and an average temperature of less than 104°. Taken in connection with the fact that in the recent methods the area of the inlets is from two to three times what it was in the old, these two sets of observations show at a glance the radical difference between the old and new ventilation. The fundamental principle of the new method is the supply of a large amount of air at a low temperature.

There is always a difficulty in clearly describing any technical matter in words, and to render a description of recent systems of ventilation clearer I have prepared a few simple diagrams of different portions of such appliances.



**Fig. 1.**

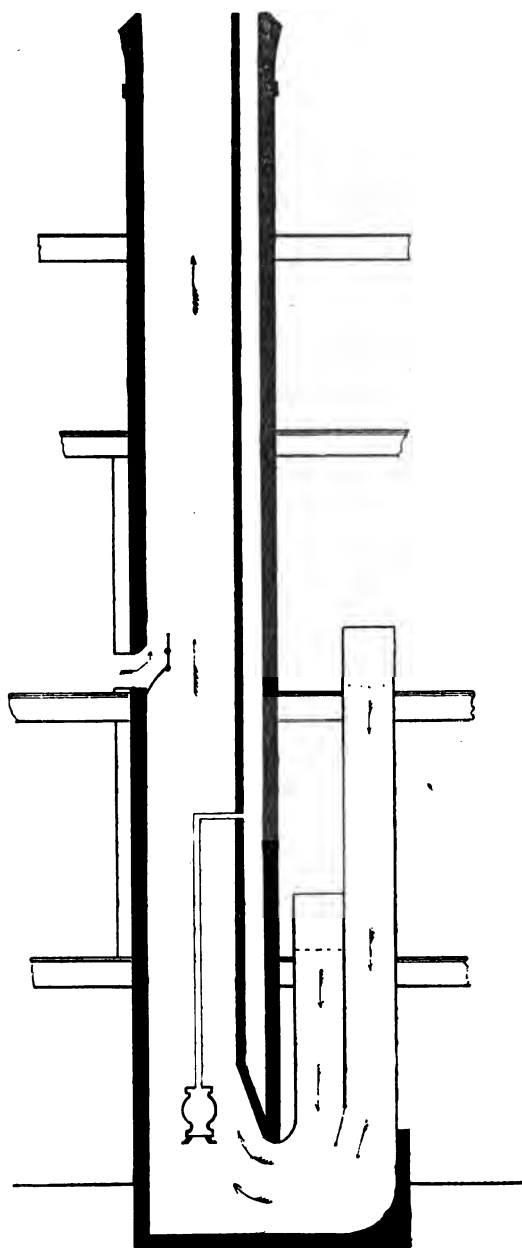
Fig. 1 represents the ground floor of a four-room school-house showing the location of the ventilating shaft and of the ducts leading thereto from the rooms. It is not pretended that this is a model plan for such a school or that the scheme of ventilation is an ideal one. The plan was selected for purposes of illustration only. The location of the shaft near the centre of the building is, however, favorable to its height; which is an important matter. The velocity of an upward current of air in an aspirating chimney depends upon two factors,—the height of the chimney and the increase in the temperature of the air in the shaft over the outside air. Air increases about one five-hundredth of its volume for every degree of increase in its temperature. If a chimney is fifty feet high an increase of  $40^{\circ}$  in the shaft would expand the column of air about 4 feet. Theoretically the velocity of the air in feet per second would be 8 times the square root of this increase in the height of the column of air, or 16 feet per second. From 30 to 40 per cent. would have to be deducted for friction. The practical velocity of the air in such a chimney is expressed very nearly by the formula  $v = \frac{1}{4} \sqrt{(t' - t) h}$ , in which  $v$  denotes the velocity in feet per second,  $t'$  the temperature of the air in the shaft,  $t$  the temperature of the external air and  $h$  the height of the chimney. As increasing the height of the chimney has the same effect as increasing the temperature of the flue we see the advantage of having the chimney as high as practicable. The increased height costs nothing after the chimney is built, while the increase in heat is a constant source of expense.

A very common method of heating such a shaft is by placing the smoke-flue from the furnaces in the centre of the chimney. A cast-iron pipe is sometimes used,—which will be, perhaps, 16" in diameter outside, or an area of about  $1\frac{1}{2}$  square feet.

When we take into consideration the low temperature at which the products of combustion enter such a flue from a well arranged furnace and the fact that this  $1\frac{1}{2}$  square feet is taken out of the best part of the chimney, as well as the large increase in friction, it may well be doubted whether there is much gained by this method, especially when furnaces or stoves are used for heating. Furthermore, such a pipe is of no use whatever in mild weather.

For obvious reasons a ventilating chimney should be square rather than oblong in its cross-section. It takes less brick to build one and there is less area for friction. For equally obvious reasons the place to apply the heat is near the bottom of the shaft, and the inlets for the air must be below the point at which the heat is applied.

Fig. 2 is a vertical section of Fig. 1, showing the chimney and the ducts from the rooms leading to the horizontal duct in the basement, which enters the chimney under the stove. The area of cross-section of this chimney as here shown is 18 square feet. We will now suppose



**Fig. 2.**

the height and temperature to be such as to give us a theoretical velocity of 16 feet per second. Deducting 30 per cent. for friction we should have an actual practical movement of the air of slightly over 11 feet per second, or 660 feet per minute; and this we could probably obtain. Such a shaft would therefore carry off 18 times 660 feet of air per minute, or 11,880 cubic feet. Allowing for entries and clothes rooms this should leave us at least 2,000 feet per minute for each school-room; or, assuming a seating capacity of 50 pupils in a room, about 40 cubic feet per minute for each scholar. This would give us very fair ventilation.

Although I have generally found the velocity of the air in a well-built and well-heated chimney to be as great as 600 feet per minute, when properly supplied with air, I have seldom found the amount extracted from the rooms as great as this velocity would seem to indicate. The difference in the flow of the air in the chimney and at the outlets of the rooms is due to friction and sometimes to leakage in the ducts between the rooms and the shaft. Neglect to make sufficient allowance for friction has been the cause of partial failure in many an otherwise well-arranged scheme of ventilation. Where the ducts are of proper size and construction the velocity of the air at the outlets from the rooms will much more closely approximate that which can be obtained in the shaft. One way of arranging a duct from an upper room is to enter it directly into the shaft with a diaphragm, as shown in Fig. 2. It will be noticed that this diaphragm is so arranged that it can be adjusted in such a way as to increase or diminish the draught from the room.

The lower portion of the partition between the foul-air ducts can also be so adjusted as to equalize the flow of air from the rooms.

Fig. 3 is a diagram of a furnace and the pipe leading from it to the room (shown in section), with a valve, commonly called a "mixing valve," for allowing a portion of the air to enter the room without passing through the furnace. It is evident that with a valve, as here shown, the amount of air sent into the room will diminish as the temperature falls off, as the velocity will decrease in proportion to the decrease in heat, and there is no increase in the size of the inlet.

Fig. 4 shows a mixing valve, or, rather, two such valves so arranged as to allow of an increase in the area of the openings as the temperature is reduced. When both valves are open the area of the duct is practically increased about 50 per cent. These valves should be under control of the teacher by means of a chain or cord running to his desk, and he can then at any time reduce the temperature of the room without materially diminishing the supply of air.

The method hitherto in use to supply air to a furnace has been to construct a duct, or cold-air box, as it is called, and it was supposed that

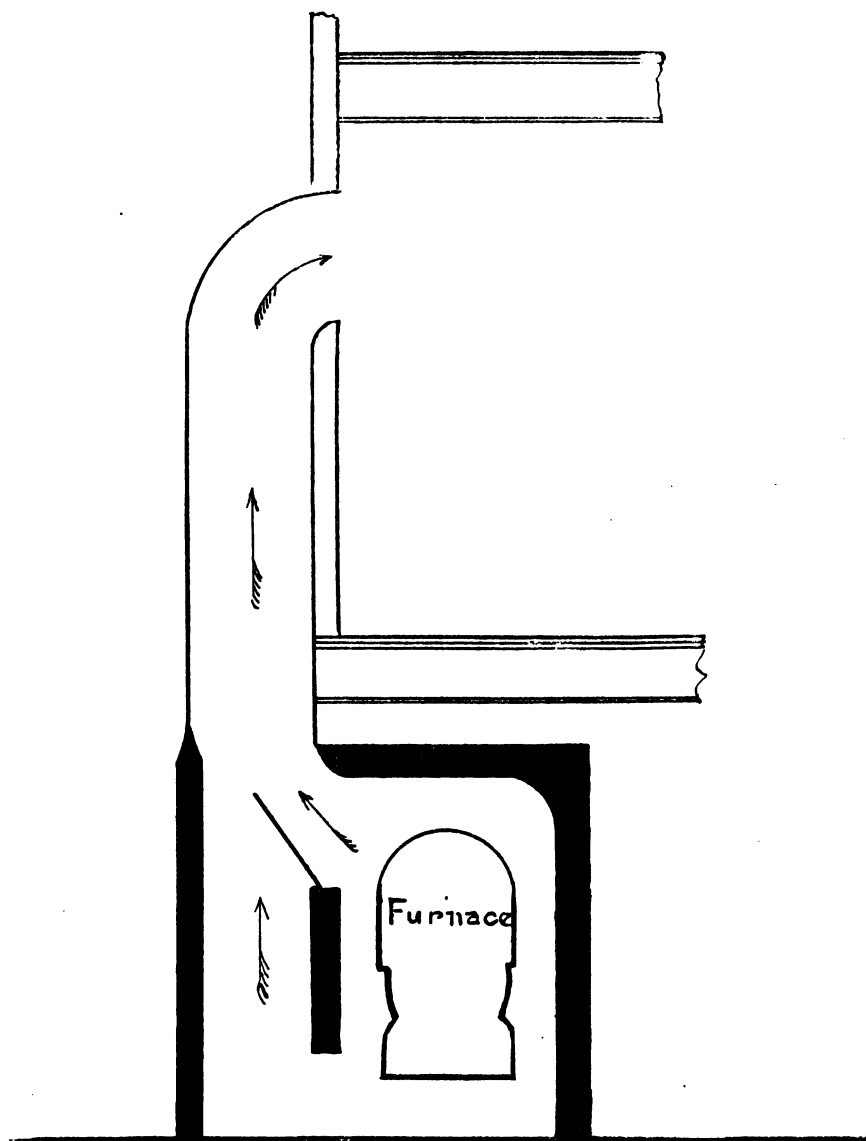


Fig. 3.



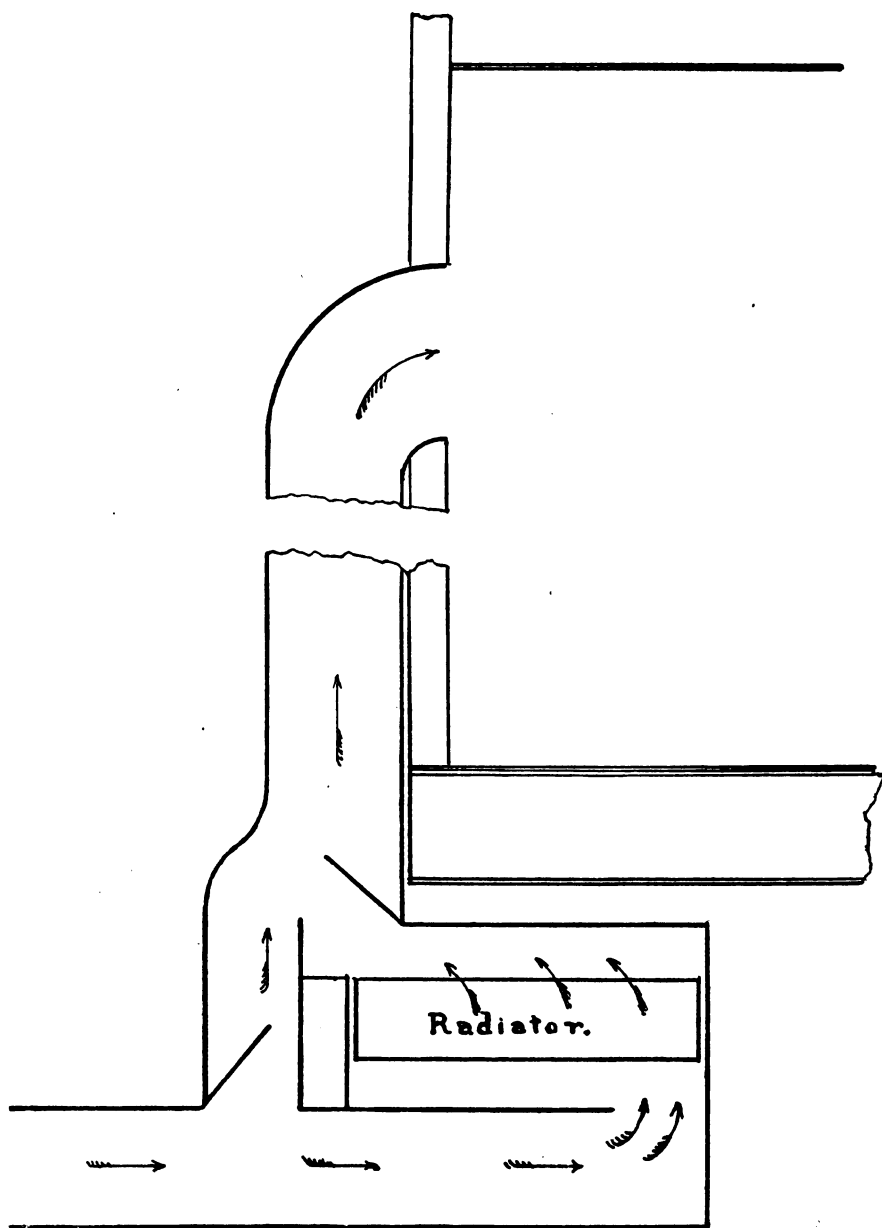


Fig. 4.

this duct must always lead from the northerly side of the building so as to take advantage of the prevailing winds; and for fear they should let in too much air these ducts were made about 20 per cent. smaller than the pipes leading from the furnace to the rooms, to allow for the expansion of the air by heating. There is always a valve in this duct so that the janitor can shut off even this supply if he is so disposed. I have found such cold-air boxes as small as 20' x 12" to supply the air for two rooms. In one case where the duct for two rooms was 18' x 18" it was over 35 feet long. In this case the inspection was made when the temperature outside was 20° and that of the room 69°. The temperature of the air at the inlet was 172°, and its velocity 120 feet per minute. The net area of the register was 1½ square feet, so that the amount of air supplied was 210 feet per minute, or less than 4 feet per minute for each of the 54 scholars present. It is probable that an increase of 200 per cent. might have been made in the amount of air delivered to the school-rooms, with a corresponding decrease in its temperature, without consuming a single additional pound of coal.

The best results have been obtained when the air for the furnace is taken from a fresh-air room partitioned off in the basement and communicating directly with the furnace without the intervention of ducts. In this case the furnace can take all the air it can send into the rooms and the outside currents of air have less effect upon its action.

In order to obtain the proper size for the warm-air ducts leading from the furnace to the rooms we must assume a certain velocity in the ducts at the temperature to which we shall heat the air. The best results I have yet found in a building gave an average velocity at the inlets of about 500 feet per minute and a temperature of about 100° with the outside temperature at 30°. Assuming that we can obtain as good results we could supply 2,000 feet of air per minute through a duct with an area of 4 square feet, and this is as small as any warm-air ducts should be to do good work. Ducts leading to lower rooms will of course have to be larger than those to upper rooms. In some cases 5 square feet in cross-section will be none to large. As in foul-air ducts sharp corners should be avoided, and the duct should enter the room as shown in Fig. 3.

We have seen that to obtain good ventilation in cold weather we must have a large supply of warm, not hot, air, and that it should be taken in near the top of the room, not because of any theoretical advantage in taking it in at that point but because it will go there any way and we are thus compelled to begin at that point to distribute it over the room. Taking it in at the top at once settles the question of where it shall be taken out, as it is manifest that we do not want it to ascend again after it has been used for respiration, even if we could compel it to do so. On which side of the room shall the inlets and outlets be located? and

shall both be on the same side? I think the best work is done where the inlets are on the inner or warm side of the room and the outlets in the floor on the same side. The incoming air is thus thrown by its inward movement towards the outer and colder walls, where it falls as it cools, and is at the same time drawn back again, by the slight vacuum created by the draught in the outlets, over the breathing line and towards the floor until it reaches the point at which it is to be removed.

In my remarks last year upon this subject I said that if the air could be taken in at or near the top of the room and thoroughly diffused near the ceiling, and then be made to move slowly and vertically downward past the breathing line and be taken out at the bottom, we should have a nearly ideal system of ventilation. All successful schemes of recent school-house ventilation are based on that theory. Repeated tests have been made by the inspectors by means of gunpowder smoke, some of which showed a wonderful approximation in practice to this theory of the circulation of the air.

In places of large assemblage, and especially where lights are used, the ventilation must necessarily be partly from the top of the room. Fig. 5 shows a method by which the draught created by the heat from the chandelier may be made to take part of the air from near the bottom of the room by induced currents into the central shaft from side ducts.

"There are no rules without exceptions," and this maxim seems to apply particularly to matters of ventilation. It is seldom that two school-buildings are planned exactly alike; and, even if they were, the location and exposure might be entirely different, and the scheme of ventilation have to be changed accordingly. I have endeavored to show as briefly as possible on what line the best work is now being done. Improvements are constantly being made.

It is probable that if the present law continues in force, new and improved appliances will be derived by which 2,000 or even 3,000 feet of air can be heated and distributed in a building for less than it now costs, by many of the old methods in use, to heat and distribute 1,000 feet.

The new law is working well and constitutes another instance of the benefits to be derived from a good statute when public opinion is ripe for its enforcement.

On motion of Chief McDonald of Ohio, on the paper read by Inspector White of Massachusetts, discussion on the same was deferred until other papers on the same subject had been submitted.

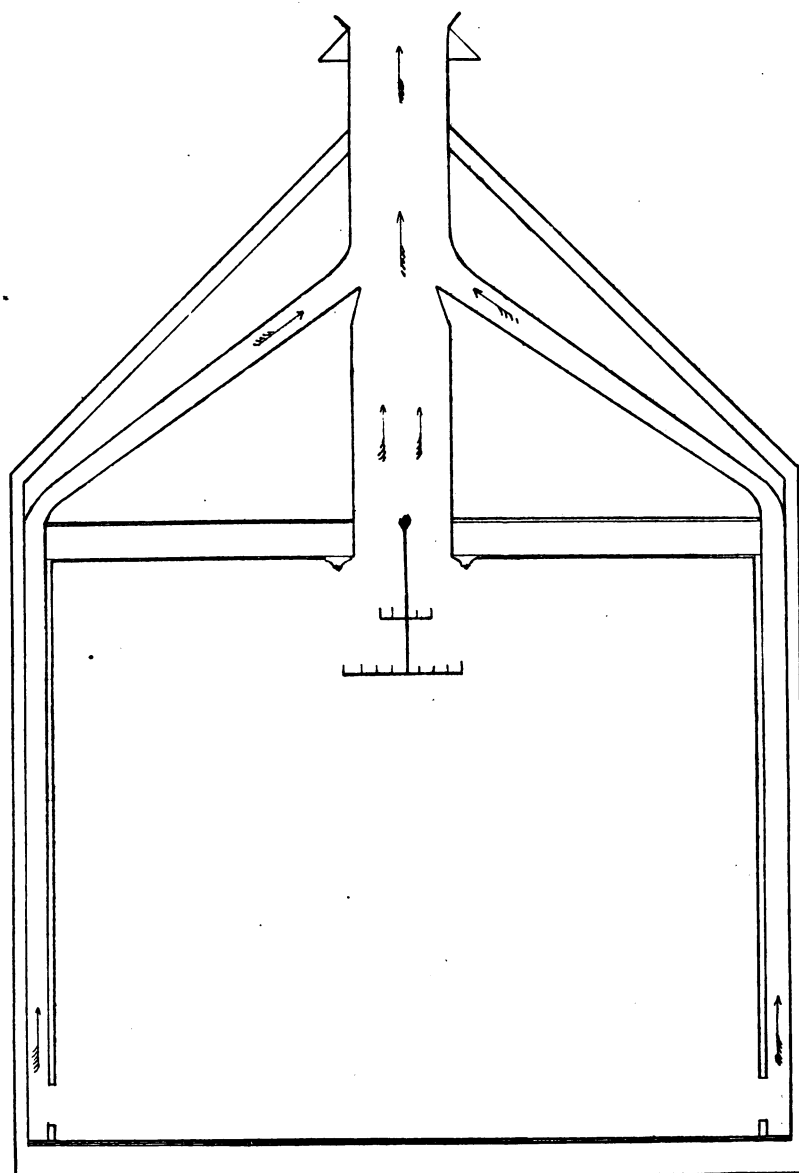


Fig. 5.

Inspector Cheney of Massachusetts read a paper on the "Ventilation of School-houses and Public Buildings," as follows:—

MR. PRESIDENT, LADIES AND GENTLEMEN:—The subject to which I propose to call your attention, for the few minutes that I may speak, is the ventilation of school-houses and public buildings.

The importance of pure air in the school-room, the public hall, the church and in our homes cannot be too highly estimated. The want of it is apparent to the casual observer in many such places. God in his infinite wisdom intended that all should have pure air, and plenty of it, because he made it free. No man has ever attempted to deal this out as a commodity; I have seen pure water peddled about the street, but pure air never. I think it would be a good idea for some one to go into this business, and solicit the trade of some of our school-houses, public halls, and such places; there would be a great demand for it after they got it introduced.

I have said that God intended that all should have pure air. If by a combination of circumstances and surroundings the free circulation of pure air is obstructed, then the intention of the great Creator is perverted, and should be remedied at once. If nature, by contact with the works of man, is unable to perform the work intended for it to do, man should at once assist nature in the performance of that work.

Nature has provided us with pure air; it makes but little difference where the air is taken, whether it be on the Rocky Mountains or in the streets of Boston, its component parts are about the same. Atmospheric air is a mixture of certain gases in almost unvarying proportions. It consists of a little more than twenty per cent. of oxygen and nearly eighty per cent. of hydrogen, about four one-hundredths of one per cent. of carbonic acid and a varying amount of water. It is said by scientific men that about twenty-five thousand cubic feet of pure air comes in contact with a man of ordinary size, under a clear sky, every hour.

There is no dilution of this, for like the waters of the ocean it is always in motion; as fast as the air is exhaled from the lungs it is taken away, and fresh, pure air is presented for the next breath.

Pure air contains about four ten-thousandths parts of carbonic acid gas when taken into the lungs. It comes from the lungs with the carbonic acid increased nearly one hundred times, and our systems have received the benefit of the change by cleansing the blood; for pure air coming in contact with the blood, through the tissues of the lungs, removes carbonic acid from the system; and physically we are stronger for the removal of this poison, mentally we are quicker and brighter, for the

blood supplies the brain with the power of thought. Thus having briefly shown you the nature of pure air and its effects upon the system, that the breathing of impure air is against the laws of nature,— shall we go on and violate those laws and take the consequences, or shall we assist nature and live longer, and enjoy good health as our Creator intended we should? I am told by the school committee that we cannot have pure air in the school-rooms; that it costs too much; that the consumption of coal necessary to heat the extra amount of fresh air, to reduce the carbonic acid gas sufficient to make the air healthy to breathe, is enormous; and I am told that the teachers ventilate by opening their windows; this done, and some one gets an objectionable draught, and some one is injured thereby.

Thus it will be seen that in unventilated school-rooms, while our children are laying the foundation for their education, they are also breaking down the constitutions which they depend upon to put that education into practical use.

Dr. Barr of Glasgow, a noted physician, in investigating the hearing of school children in that city found that twenty-five per cent. of them were defective in hearing. Dr. W. Von Richard of Riga found among 1,055 scholars of the gymnasium twenty-two per cent. who did not hear well. According to Weil, who examined 5,905 of the pupils in the mixed and intermediate schools of Stuttgart, the per cent. was as high as thirty.

Dr. Sexton of Washington found among 570 pupils in different schools thirteen per cent. who were defective of hearing. Moure of Bordeaux found seventeen per cent.; Gills of Paris found twenty-two to twenty-five per cent.; Bezold of Munich found twenty-five per cent., who were lacking in normal acuteness of hearing. He says that in order to prevent local draught, a prolific cause of ear trouble, the school-room should be supplied with sufficient methods of ventilation so that the windows may be kept closed during the hours of instruction.

You will see by this that not only the health of the school children is impaired by attending poorly ventilated school-rooms, but the hearing of those that are to become men and women of the future is affected to such an extent as to be a source of annoyance both to themselves and the teacher. As we investigate, the importance of properly ventilated school-rooms becomes more apparent. The question arises, how can good ventilation be obtained? Heating by warm air, brought from a source outside of the apartment to be heated, is undoubtedly the nearest approach to nature's methods that is possible; such an arrangement, by the use of proper apparatus, floods the house with an active circulation of fresh warm air, and finds its analogy in the mild breezes of summer, which, doing the same work on a grander scale, brings warmth and freshness in healthful combination.

Sanitary heating may be defined as the art of reproducing in the house all the freshness and vitality of out-door air. It demands that the warm air shall be delivered in abundant quantities, and be absolutely free from dust, gas and organic impurities. It also demands that a provision be made for removing the same air as fast as it becomes contaminated by breath, or other causes.

When this principle is applied we find that the pure air is first taken from outside the house, then conveyed to the furnace or radiator, when it becomes warmed without change in its purity, and is then distributed to the various rooms of the building.

The open fireplace has been considered by all ages a very proper means for ventilating dwellings, and at the beginning of the present century was used exclusively in kitchen and school-rooms. Its efficiency for such places cannot be doubted, but when such means are introduced into the modern school-room of to-day, with its ordinary surroundings, it falls into insignificance; for in former years, when these means so efficiently did their work, the buildings were rudely constructed, and in many instances of rustic design. No building can be properly ventilated without the assistance of a foul air flue, and this must be so located with reference to the fresh air inlet that a free and complete circulation of the warmed fresh air is made over the entire room. This can best be accomplished, in my opinion, by bringing the warm air into the room some six or eight feet from the floor, and by locating the foul air flue on the same side of the room as the fresh air inlet, making the outlet at the floor; by so doing it will have a tendency to remove the cold air from the floor, as well as the vitiated air from the room, a matter of much importance in many buildings. This foul air flue, or duct, must have sufficient draught to remove the vitiated air in such quantities as to keep the carbonic acid gas below eight parts in ten thousand volumes of air, as air impregnated with more than that amount, according to the best scientific authorities, becomes poisonous and unfit to breathe. This can be done in some cases by producing heat in the foul air flue. The heating arrangement sometimes consists of a small coal stove and at other times of steam pipes, gas-jets, etc. But when a large amount of air is to be removed, as would be necessary where the audience was large and very compact, the cheapest, most feasible and most satisfactory arrangement that can be introduced, in my opinion, is the exhaust fan. This, of course, where power can be obtained to propel it, either water, steam or electric motor. Of the many advantages that mechanical means have for creating draughts over heat I will speak of but a few.

We will take, for instance, the ordinary public hall: in a school-room of the usual size each scholar has a cubic air space of about 225 feet, and a floor space of 20 square feet; in the public hall of ordinary

dimensions they have an air space of about 75 cubic feet, and a floor space of 6 square feet. It will be seen that where we try to get at least 30 cubic feet of fresh air per minute for each scholar in a school-room, in a public hall of the same size it would require a supply of 90 cubic feet per minute, or three times the amount we would have to furnish if it was used for a school-room.

It having been found that the velocity through heated flues will not exceed 350 feet per minute, on an average, it would require a flue three times as large to ventilate a public hall as it would to ventilate a school-room of the same size, and, of course, three times as much heat to heat it; a thing which for various reasons would not be practical. Oftentimes the building of a foul air flue of sufficient capacity to properly ventilate a building by heat takes up valuable room that is needed for other purposes, and especially is this true in buildings that were built without any pretension to ventilation. Mechanical means do away with this obstacle to a great extent, as a larger velocity can be obtained and smaller flues used. As a matter of economy, I believe it to be cheaper.

If we wish to take the dust out of the rag-cutting room of a paper mill, or the gas from the color-setting room in a print works, we do not recommend them to put in a foul air flue, aided by heat. Why should we not expect a fan, or air propeller, to do its work with as much superiority in the school-room as in the places that I have just named? It is estimated that a 48-inch fan of some patterns, run at a speed of 250 revolutions per minute, will exhaust under free circulation 20,384 cubic feet of air per minute. Allowing thirty per cent. for friction, and we have exhausted over 14,000 cubic feet. Thus it will be seen that one of these fans run at the above rate of speed, which is very slow, would give to the scholars of an eight-room building, allowing fifty scholars to each room, nearly 35 cubic feet of fresh air each per minute; if forty scholars are allowed to each room, they would get 42 feet per scholar. It would take about a one horse-power motor to run this fan. This run six hours per day the cost would be very small indeed. It could be so arranged that the principal of the school could set it in motion or stop it at any minute, thus doing away with the trouble of keeping a fire in the stack in moderate weather. You will see by this that a 48-inch flue, supplied with a proper fan, will exhaust all the air necessary for an eight-room building; whereas, if heat is depended on to exhaust this amount of air, it would take a flue nearly three times as large to do the work. I am of the opinion that where a large number of school-rooms in the same building or where large audience rooms are to be ventilated, the best way to do the work is by heating the building by indirect steam, and exhaust the foul air by a fan, or air propeller, in the top of the building.



Deputy Franey of New York moved that the paper be deferred for future discussion.

Inspector Davis of Ohio, moved that the convention adjourn until 9.30 A.M. Thursday morning.

Chief McDonald of Ohio made an amendment that the convention adjourn until 8 P.M., and that the papers on ventilation be discussed at the evening session. After some little discussion the amendment prevailed.

Before the motion to adjourn was put, President Wade appointed the following committee on resolutions: Inspector Evan R. Davis of Ohio; Robert Barber, Canada; L. T. Fell, New Jersey; Wm. S. Simmons, Connecticut; Joseph M. Dyson, Massachusetts.

On motion, convention adjourned. •

ISAAC S. MULLEN,

*Secretary.*

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NEW YORK, Aug. 27, 1890.

Convention opened at 8 P.M.

President Wade in the chair.

On motion of Deputy Franey of New York minutes of afternoon session were dispensed with.

Chief McDonald of Ohio opened the discussion on the subject of ventilation, and remarked that the subject-matter of Inspector White's paper of Massachusetts met with his entire approbation.

Inspector White of Massachusetts made answers to several inquiries relating to the paper on ventilation read by him.

On motion of Inspector Weinthal of New Jersey the paper on ventilation was referred to the committee on resolutions.

Mr. Small of New Hampshire was introduced and gave an explanation of his fire-escape.

Mrs. M. B. McEnery, inspector from Pennsylvania, was called upon to read a paper. Before doing so she expressed the regrets of her associates in not being able to be present at the convention.

The following paper was then read by Mrs. McEnery :—

#### FACTORY INSPECTION.

MR. PRESIDENT, LADIES AND GENTLEMEN :—I thank you very sincerely for your great courtesy in extending to me an invitation to address you, but I fear that it is almost presumption for so small a specimen of humanity to rise before so large an audience,—to say nothing of its intelligence and expectations. For little women, or, for that matter, little men, there are but two alternatives,—the one to spread our tiny wings and soar, with the eagle, toward dizzy heights ; the other to modestly bow our puny heads and, on bended knees, beseech the big people to excuse us for living at all. Of the two extremes we choose the former ; hence this feeble effort, on my part, to paddle a very small canoe in and out among the gallant, stately craft, hoping, at least, to escape annihilation.

Factory inspection, as a *bona fide* branch of our State government, is no longer an experiment but a settled fact. We are not here to apologize for its inception, but to rejoice together over our mutual efforts and success, and to confer as to how is best to build a mighty structure upon the firm foundation already laid. Since “there is wisdom in a multitude of counsellors,” much good must certainly arise from our comparison of ideas resulting from our manifold experiences. Of course to some extent our experiences must have been much the same ; and no doubt we hold many views in common as to certain changes in the present *régime*, or new plans to be introduced as helps to the advancement of the good cause. I presume it is in order to call your attention to any matters of this kind that have suggested themselves to me in my daily routine of inspection.

First I will mention wherein a good law can be made better, viz. (Pennsylvania law) :—“*Section 4.* No person, firm or corporation employing less than ten persons, who are women or children, shall be deemed a factory, manufacturing or mercantile establishment within the meaning of this act.”

I believe this clause ought to be changed to include the smallest factories. Why a manufacturer employing less than ten should be exempt from the requirements of the law is a mystery. And it is an injustice to the larger manufacturers, and a greater one to the minors themselves, for, as a rule, the larger factories have better sanitary con-

ditions, more safeguards for life and limb, and better conveniences of all kinds for the employee; so if minors must work it is far better for them to be employed in the larger factories and stores. I hope a change will be made to include the smallest number permissible by law. Until this is done, and compulsory education made a supplement, the factory law will, to some extent, be defeated.

Another thing that seems imperative to me is to compel employers to use some conspicuous means to indicate the route to the fire-escapes. As a rule, nine-tenths of employees do not even know whether a building has fire-escapes. I have made it a point of observation, and in nearly four hundred inspections I have found but three places where directions were conspicuously posted, whereby employees in factories, and both employees and customers in stores, might know how to reach the fire-escapes. I therefore pray that we may soon have an amendment to the fire-escape clause, giving factory inspectors authority to condemn unsafe fire-escapes, so as to provide for better and more accessible ones.

For the most part I have been received not only courteously but cordially by the manufacturers of Pennsylvania,—which goes to show the peculiar mutuality of the law recognized as a benefit to both employer and employee; this, of course, is one of the roses we pluck.

A very pleasant and unusual feature of factory inspection is its double nature; it is seldom in jurisprudence that a law is welcomed by both employer and employee. It is exceedingly pleasant for us to receive a cordial greeting from the members of the firm, and, at the same time, pleasant smiles from the faithful employees, who in us recognize friends looking after their safety and interest. Who knows but that this factory law, when it shall have been fully matured, may help to solve the great problem of capital and labor. One thing is certain, humanity is the only plane to smooth down the rough places between work and wages. We factory inspectors have had abundant opportunity to note the harmony and mutual good feeling when employers conduct their business on principles of humanity. I sincerely hope every State in the Union will wheel into line and adopt a factory law, and emulate Massachusetts and New Jersey in their compulsory education, that our minors, liberated from the factories, may not join the gamin of the street, thus using the physical strength saved to destroy their mental and moral nature. If the prohibitory age can be made universally fourteen, and all children under that age kept in school the entire scholastic year, great indeed would be the results of our factory law. I trust that the next Legislature of Pennsylvania will place us upon the same footing with other States, that have already secured these supplements which make the law so effectual; no doubt she will avail herself of all good legislation, for, although she is the

infant State in this association, she was the first to appoint female deputies. All honor to her for her glorious example.

I congratulate New York for her speedy following in the recognition of our sex, and hope by the time we meet again in national council that every State belonging to the association may be in part represented by women.

On motion of Inspector Mullen of Massachusetts the paper was referred to the committee on resolutions.

Several inspectors questioned Mrs. McEnery in relation to her various duties as inspector; the answers given were satisfactory, showing that the lady was conversant with her duties.

Deputy Commissioner of Labor L. R. Campbell of Maine read the following paper on the "Restriction of the Hours of Labor in Factories and Workshops :"—

MR. PRESIDENT AND GENTLEMEN OF THE CONVENTION :— The question as to the reduction of the hours of labor to constitute a day's work has been agitated in the Old World and in this country for at least half a century. It is evident to every thinking person that it is impracticable to reduce the hours of labor in a manner whereby the world's product is curtailed or lessened in the least. It is an axiom universally recognized that all we are in science, art, morality, and indeed in true civilization, we owe, in a great measure, to our wonderful power of production in material things. That which distinguishes our present age from that of the rough stone age, when man stood apart even from his fellow-man in selfish isolation, and acknowledged no chief, obeyed no laws, except those of his baser passions, is owing mostly, if not entirely, to the successful accomplishment of that command given to man, "Be fruitful, and multiply and replenish the earth and subdue it." So in the discussion of the subject of the reduction of the hours of labor we must ever keep in mind that principle that any reduction of the hours of labor at the sacrifice of the world's product is suicidal to every interest, both of the employer and of the employees. Francis A. Walker very concisely says: "There is but one way in which you can shorten the hours of labor; you must promote intelligence and education among the people in order that with less labor and less capital they can produce a larger annual product." So from the above premises we may derive the following principle, to wit, any reduction of the hours of labor to be successful and permanent must be in proportion to the increase of production. The history of all successful

movements for less hours to constitute a day's work, as a rule, is that they have been followed by a greater production in their several lines; and, also, these reductions in the hours of labor were generally followed by an increase of wages. Forty years ago it was the custom in all trades and callings to work thirteen and fourteen hours for a day's work, and with the then imperfect labor-saving machinery, the operatives in the various industries could purchase at that time with their labor few of the things which the most humble workman of to-day deems necessities, and very few of the things which we consider luxuries.

But wonderful the change that has taken place in the last thirty years in the mode and art of production. As wonderful in some of its realities as were the dreams and theories of the alchemists of old. This great change in industrial operations was brought about by the introduction and use of steam as a motive power, and by improved machinery in manufacturing and commercial enterprises. The first patent for the application of steam power to various kinds of machines was taken out as early as 1698 by Captain Savery of England. Since that time the names of inventors are legion, and they belong to every department of science and art; and to their skill and patient labor we owe the present perfection in the wonderful machinery of production, which we witness to-day in all industrial pursuits. The transition from the old custom of hand manufacturing to that of steam power was not accomplished without hardship to both labor and capital. The historian tells us that in England, in 1811, "such was the increase of machinery driven by steam, and such the improvement made by Hargreaves, Arkwright, Crompton and others in machinery for spinning and weaving, that much distress arose among the working classes. The price of bread was growing higher and higher, while in many districts skilled operatives could not earn by their utmost efforts two dollars a week. They saw their hand labor supplanted by patent monsters of iron and fire, which never grew weary, which subsisted on water and coal, and never asked for wages." Up to the period of the introduction of the mechanical industries the north of England was meagre in population, and the people poor and ignorant. But the change wrought by the introduction of steam was magical. Factories were built; great cities, as Birmingham, Manchester, Leeds, Nottingham, Sheffield and Liverpool, made the north a new country.

And the prophecy of James Watts as he stood before George the Third of England, with a working model in his hand. His Majesty patronizingly asked him, "Well, my man, what have you to sell?" The inventor promptly answered, "What kings covet, may it please your Majesty, power."

In the New World at this time the industries were passing through

similar experiences; but, owing to the abundance of cheap land, the operatives of the factories and workshops when out of employment were able to settle upon the public lands, and thus avoid many of the hardships experienced by the workmen of the Old World.

Under the domestic system of manufacturing the work was all done at the homes or in small shops of the operatives; and the machinery employed was rude, and of but little utility in production. But at the advent of steam, and when the pushing and enterprising manufacturers saw that steam was to be the king of powers, factories and workshops equipped with steam power begun to multiply, and the help to run these new plants of industry began to concentrate in large numbers, to co-operate in the production of the articles and wares of the various industries. Here it was that the first division of labor took place, which to-day distinguishes our modern industrial system from the old domestic system.

When this new factor of production—steam—was applied to the leading industries, that old enemy of large profits under the old system—competition—after a while made its appearance, and there was sharper competition among the manufacturers than ever before. To hold the markets for their wares, the managers of these industries were ever on the alert to reduce their cost. And the wages of the operatives employed in these industries were continually being reduced to lessen the cost of the various products, until the condition of the operatives was such as to attract the attention of philanthropic men of both England and the United States. These men were instrumental in securing the passage of statutes regulating the hours of labor, preserving the health and promoting the education of young persons in mills and factories.

From 1825 to 1851 there was agitation among the various callings in this country to limit the day's work to ten hours. As early as 1840 the working time of the employees of the United States government, in the navy yards, was limited by proclamation of the president, Martin Van Buren, issued April 10, to ten hours.

It was not until 1847, and after a hard and protracted contest, that the friends of the ten-hour bill were successful in passing it through the British parliament. When this bill was under consideration in parliament, Lord Macaulay among other things said: "Never will I believe that what makes a population stronger, and healthier, and wiser, and better, can ultimately make it poorer. You try to frighten us by telling us that in some German factories the young work seventeen hours in the twenty-four; that they work so hard that among the thousands there is not one who grows to such a stature that he can be admitted into the army; and you ask whether if we pass this bill we can possibly hold our own against such competition as this. Sir, I laugh at the thought of such com-

petition. If ever we are forced to yield the foremost place among commercial nations, we shall yield it, not to a race of degenerate dwarfs, but to some people pre-eminently vigorous in body and in mind." A great impetus was given to the ten-hour movement in this country by the action of the British parliament, and in New England in 1851 and 1852 it became one of the leading political questions of the day. And such friends of the ten-hour movement, in Massachusetts, as Henry Wilson, N. P. Banks, Benj. F. Butler, William S. Roberson and William Claflin, were among the members elected to the Legislature favorable to the ten-hour law. It may seem strange to be advocating at this late day the adoption of a ten-hour system for the manufacturing industries of our land when there are a large number of men and many labor organizations advocating the eight-hour system, and when President Gompers of the Federation of Labor declares that within the last two months 250,000 mechanics and artisans in this country have been granted the eight-hour system; but the facts are that a large per cent. of the employees in and out of mills and workshops, in this country, work eleven and in a great many instances twelve and thirteen hours to constitute a day's work. As far as I have been able to learn, cotton factories in a number of the southern States work their poor operatives twelve and thirteen hours a day. In the last ten years a great deal of northern capital has been invested in southern mills where, with cheap labor and low-price cotton, the mills of the South are able to undersell the New England manufacturers in coarser cotton goods. One of the leading cotton manufacturers of my State said to me, "If I were to commence business to-day, and knowing as much as I do of the condition of things in my trade, I would start business at the South; why, down in South Carolina they run their mills fourteen hours a day. They pay their help on an average eighty cents a day. We run our mills ten hours a day, and pay on an average over a dollar a day." In nine or ten States of this Union the labor of children and women is limited to ten hours a day; and in the other thirty-two States the laws are either silent or allow more than ten hours a day. For instance, the public laws of Minnesota for 1885 imposed a penalty of from twenty-five to one hundred dollars to be inflicted upon any officer or employee of a railroad company who compels a locomotive engineer or fireman to labor more than eighteen hours a day, except in cases of urgent necessity. Again, in Georgia the code of 1882 provides "that the hours of labor shall be from sunrise to sunset, for persons under twenty-one, in manufacturing and mechanical employments."

Keeping in mind the general principle that we have laid down, to wit, that the reduction of the hours of labor to be successful and permanent must be in proportion to the progress of production. Now are the products of the farms, the mills, the workshops and the mines of

such quantity as will allow a reduction of the working time in all industries to ten hours or less a day? In my State, since the adoption of the ten hours in lieu of the eleven hours, in mills and factories where machinery is employed it is the universal verdict of manufacturers that their product is as great under the ten-hour system as it was under the eleven-hour system, and I think that the same answer comes from every State that has adopted the ten-hour system. We will not direct our address solely to the beneficial results which would accrue to the physical, mental, moral and social condition of all workmen in the reduction of the hours to ten or less, but we will present it on the grounds of political economy alone. The national bureau of labor for 1886, under the caption of "Industrial depressions," demonstrates beyond a doubt that in the industries where steam and water power are used, in the past fifteen years new machinery has displaced a great amount of muscular labor. Let us take one or two illustrations in the manufacture of agricultural implements. New machinery during the past fifteen or twenty years has, in the opinion of some of the best manufacturers of such implements, displaced fully fifty per cent. of the muscular labor formerly employed. Edward Atkinson, in a recent issue of "Bradstreet's Report," has a paper in which he maintains, with facts and figures, that labor-saving machinery has in farming, as in all other industries, cheapened production and lightened the load of the farmer. The decline in price of nearly all farm machinery since 1880 is from thirty to sixty per cent. Further, Commissioner Wright says, "The manufacturers of boots and shoes offer some very wonderful facts in this connection. In one large and long-established manufactory, in one of the eastern States, the proprietors testify that it would require five hundred persons working by hand processes to make as many women's boots and shoes as one hundred persons now make with the aid of machinery, a displacement of eighty per cent. of labor." In a recent publication a writer said "that the steam engines in England alone could now do in eighteen hours what it took the ancient Egyptians twenty years to accomplish with one hundred thousand men. And the spinning machinery in Lancashire can do in one year as much work as twenty-one million persons could do with the old distaff and spindle in the same time." Investigation in these lines by experts shows that the same astonishing increase in the power of production exists in many other branches of industry. Prince P. Kropotkin, in "The Forum" for August, places the industrial increase of wealth in a nutshell when he says, "Industrial wealth has grown at a rate which no possible increase of population could attain, and it can grow with still greater speed."

I think the best business men of the country will freely acknowledge that the world's product is of such a quantity as to allow the reduction of the hours of labor in nearly all of the leading industries to ten or less



hours a day. We, as an organization of inspectors of factories and workshops, are anxiously waiting for our sister States to enact factory laws and to welcome their inspectors into our body.

On motion of Chief McDonald of Ohio, Commissioner Campbell's paper was received.

Inspector Dyson of Massachusetts spoke in regard to the labor law in Massachusetts, citing the law bearing thereon.

Inspector Davis of Ohio also made some remarks on the restriction of labor, referring to the laws of Ohio. He thought as did also other inspectors of his State, that the hours should be reduced for the working of children, and was of the opinion that it would be a great benefit to them.

Deputy Franey of New York thought that a law ought to be passed more stringent than that now in force upon employers in regard to the hours of labor in various establishments, and a large fine imposed for not adhering to the same.

Chief McDonald of Ohio said that it would perhaps be a wise step for such a move, not only in Ohio but all over the country.

Chief Connolly of New York said that the subject now under discussion was agitating the working people of New York, and was in favor of the reduction of the hours of labor as suggested in the paper read by Mr. Campbell.

Commissioner Campbell of Maine spoke briefly on the same subject.

Inspector Coon of Massachusetts moved that the convention adjourn until 9 30 A.M. Thursday.

Before putting the motion to adjourn an invitation from the Board of Charities was read, to visit Blackwell Island on the city boat. On motion, the invitation was accepted.

At 10 P.M. the convention adjourned.

ISAAC S. MULLEN,  
*Secretary.*

NEW YORK, Aug. 28, 1890.

Convention opened at 9.30 A.M.

President Wade in the chair.

Minutes of last session dispensed with.

Inspector White of New Jersey moved that the paper on the "Restriction of the Hours of Labor" be referred to the committee on resolutions.

Inspectors Ellis of Ohio and Coon of Massachusetts spoke briefly on the motion to refer.

Inspector Coe of New York moved an amendment that the committee on resolutions be instructed to report a resolution in favor of the ten-hour law in States not having such a law.

Inspector White of Massachusetts spoke on the amendment; that he was opposed to the convention taking any action in relation to the hours of labor; that the object of the meetings of the convention was to interchange views with each other and not to legislate.

Chief McDonald of Ohio thought that there must be a misunderstanding in regard to the question under consideration.

Inspector Coe of New York thought that the question was proper, as the same things were done in previous conventions.

Inspector Campbell said that he was willing to trust his paper to the committee.

Inspector McKay of New York was in favor of the paper going to the committee.

Inspector Coe's amendment, that the committee on resolutions be instructed to report a resolution in favor of the ten-hour law in States not having such a law, was put to the convention by a standing vote, which resulted in eighteen for and sixteen against.

The motion to refer Deputy-Commissioner Campbell's paper to the committee on resolutions was put and carried.

The following letter from Gideon A. Tucker was read : —

NEW YORK, Aug. 27, 1890.

HON. GEORGE A. MCKAY.

DEAR SIR : — Accept my thanks for your kind invitation to the dinner and excursions of the State factory inspectors and their guests. I have long since been compelled by delicate health to decline all entertainments of this nature, and I greatly regret that, for that reason, I am not able to accept and accompany you.

And this the more, that I am one who recognizes the great importance to society of the work confided to factory inspectors, and desire, so far as I can do anything, to assist and serve the work and them. Be so good as to present my respectful regrets to those assembled. I trust they will be energetic and faithful in extending the care of the State over its helpless children and in lightening the afflictions of the poor.

I am, dear sir, with high respect, yours,

GIDEON A. TUCKER.

The following letter from His Honor the Mayor, Hugh Grant, was read : —

MAYOR'S OFFICE, NEW YORK, Aug. 27, 1890.

- Mr. GEO. A. MCKAY, *Deputy Factory Inspector*, 318 Third Street, New York.

DEAR SIR : — I am in receipt of your kind invitation of the 26th inst. to participate in the visit of the National Association of Factory Inspectors to the institutions under the charge of the Commissioners of Charities and Corrections, Thursday, the 28th of August, and also the excursion and dinner at the West End Hotel, Coney Island, Friday, Aug. 29, 1890, and I regret very much that my official engagements are such as not to permit me the pleasure of attending.

Thanking you for your courteous invitation,

I am very truly yours,

HUGH GRANT, *Mayor*.

The following letter from State Senator Geo. F. Roesch was read : —

NEW YORK, Aug. 28, 1890.

GEO. A. MCKAY, Esq., *Deputy, etc.*

MY DEAR SIR : — Your kind favor of the 26th inst., inviting me to participate in the proceedings of the National Association of Factory Inspectors in this city, was duly received.

My business engagements for the days in question are such that it is impossible for me to accept the invitation.

Sincerely regretting my inability to be with you and your associates, and wishing your celebration the success the worthy cause deserves,

I have the honor to remain,

Your obedient servant,

GEO. F. ROESCH, *Senator.*

The following letters from the Board of Public Charities and Corrections were read : —

NEW YORK, Aug. 28, 1890.

Mr. GEO. A. MCKAY.

MY DEAR SIR : — Please accept my thanks for your kind invitation for Friday afternoon. I regret that I can't accept, as I shall be out of the city.

Sincerely yours,

CHARLES E. SIMMONS.

NEW YORK HOUSE OF REFUGE, Aug. 28, 1890.

RUFUS R. WADE, Esq., *President of the Convention of the Inspectors of Public Buildings, Factories and Workshops of North America.*

DEAR SIR : — It will afford the managers and officers of this institution much pleasure to have the committee visit the House of Refuge on Randall's Island, at such time as will be most convenient for the members.

The ferry to the institution is at the foot of 120th Street and Harlem River.

I have the honor to remain, yours truly,

ISRAEL C. JONES, *Superintendent.*

Inspector Fell of New Jersey moved that all papers read be referred to the committee on resolutions for their consideration and report.

Deputy Inspector Mrs. Alex. Bremer read a paper on "Women Factory Inspectors, and Their Usefulness : " —

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE CONVENTION : — It affords me great pleasure to have the honor to meet and address you upon this occasion as one of your body, — a co-laborer with you in an important and noble occupation, and, like you, called upon to assist in

the enforcement of the laws so wisely framed by our Legislature for the mutual benefit and protection of both manufacturing and laboring classes.

It is the first time that woman's aid has been officially invoked by the State to participate in the arduous but laudable work which you have performed so faithfully and satisfactorily since the creation of the various bureaus of factory inspection. Naturally the question will arise as to the usefulness of women as factory inspectors. It is too early to invite criticism upon our work, as we have yet to gain sufficient knowledge of the duties which we are called upon to perform, for as all of you know, gentlemen, the duties of a factory inspector are by no means an easy task; their functions are manifold and complicated and require a careful study, so as to do justice to both workman and employer without wronging either, but I do not hesitate to assert, and think I express the opinion of the general public, that the appointment of female factory inspectors is a step in the right direction, a valuable addition to our factory legislation, and an evidence of the progressive age in which we live. I do not wish to be misunderstood and to be considered a so-called "blue stocking" or advocate of woman's rights and suffrage, but I do claim that there are certain spheres in life where woman's efforts are unquestionably essential and almost necessary to accomplish satisfactory results.

Woman's beneficial work and the influence of her affectionate care are felt in all stages of life; from the cradle to the grave no home is possible without her; she is indispensable to man's health and happiness; the kitchen, the sick-bed, are depending upon her; nay, even on the battle-field she is called to care for the wounded and ease the suffering of the dying soldier. Who has not heard of that noble woman Florence Nightingale, who has given her whole life to a noble cause, and with her tender hand and feeling heart closed many a dying soldier's eyes, and in his last moments, by her gentle presence, acting the part of an absent mother, wife, or sweetheart, recalled before him memories dear of home? Why then should the factory not be a good and proper field for woman to aid in reducing the sufferings of toilers? As long as society permits the labor of women and children in factories, either to earn their own livelihood or to assist their husbands and parents to eke out an existence, so long as this deplorable state of affairs lasts, I say women as factory inspectors are a necessity, and that it becomes a woman's duty to help and look to it that they are not abused and imposed upon by avaricious or immoral employers. Their usefulness will surely be felt before very long, and I have no doubt, when we meet again in convention a year hence, the fruitful work we will have performed by that time must be recognized and appreciated even by those who were opposed to female factory inspectors, and the example initi-

ated by the Empire State, creating female inspectors, be followed by other States throughout the Union.

Of course we are not physically fitted for all the duties devolving upon male inspectors, but there are special cases where we will prove of greater value and can render better service, by a close and careful inspection, than a male inspector. We will gain the confidence of one of our own sex sooner than will a man, which I already have experienced in more than one instance since my appointment. Complaints against neglected sanitary arrangement have been made to me, and when I inquired the reason why they had not stated their grievances and inconveniences sooner to some of the inspectors, the answer would invariably be, "Why, we would rather suffer torture all day than mention it to a man."

It is with great pleasure that I must admit of having met with the kindest reception wherever I have been, both from the employers and employees, and with a particular manifestation of confidential delight on the part of women, and especially young girls, in all the factories which I have visited. Many vile scribblings on walls, filthy indecencies and inconvenient annoyances have been pointed out to me, yes, even immoralities related to me which in ninety-nine cases out of a hundred, owing to the natural timidity of woman towards man, perhaps never would have been mentioned, and which I should consider a breach of confidence on my part to disclose even to my superior officers. I have in all cases tried to remedy the evil without going beyond the limits of the law, and I urge my feminine colleagues to use their utmost discretion when called upon in similar cases, which no doubt they will be as soon as we have gained the full confidence of those affected, and to render relief and assistance without submitting the unfortunate ones to any unnecessary public exposure; for only by strict confidence can we succeed to get at the bottom facts of existing evils, and only by executing our duties in a womanly, missionary way, acting a true woman's part as peaceful arbitrator between employers and employees, can we hope to secure that success which should be the object of our mission.

But of still greater benefit and usefulness will female inspectors prove in relation to child labor. Woman is the first guardian and tutor of child; she guides its first step, she teaches it to speak the first word, — in fact woman's natural destiny and occupation is devoted to the care and welfare of the child, for which she even sacrifices her life. Nothing will escape a mother's watchful eye; she in fact becomes responsible for the physical as well as moral training of the child, and well may that nation feel secure which has given proper attention to a careful education of its female population, for on them afterwards depends the education of the nation. If, therefore, we consider the education and welfare of our children best taken care of by female teachers, as is

the case in our public school system throughout this great country of America, should not a woman be entrusted to guard and protect the child in the first years of toilsome labor, and guide its first steps into the realization of life? You will find that the gentleness of woman will be better adapted for it, and accomplish better results, than will the sternness of man. I feel confident that the introduction of females in our factory inspection system will prove and substantiate its usefulness to the satisfaction of all.

On motion of Inspector Cheney of Massachusetts, Mrs. Bremer's paper was referred to the committee on resolutions.

Inspector White of Massachusetts called upon Mrs. McEnery of Pennsylvania to state some of the points wherein she had found women to be better fitted than men for the work of inspecting factories. He thought that women had as good brains as men, but he needed to be instructed as to wherein they had better.

Mrs. McEnery responded that that was the main requisite in an inspector, whether man or woman. She had developed some of that faculty in the course of four hundred inspections during her first half year of official service. She never discussed the wages question with employees, but always the question as to the route to fire-escapes. That so far as the law was concerned there was no sex in the law but business.

Several inspectors questioned Mrs. McEnery as to her duties.

The several questions were answered with promptness and intelligence.

Chief Fell of New Jersey thought that it was rather out of place to question the lady in so rigid a manner.

Chief Connolly of New York said that the female inspectors of that State found no trouble in getting into factories.

Inspector Davis of Ohio did not approve of placing any member of the convention on the rack. They were present to find out what should be done, and to learn what they could in relation to their duties.

Deputy McKay of New York moved that the committee on resolutions be requested to present a resolution in regard to female inspectors. It was declared not in order.

Inspector Davis of Ohio read the following paper on the "Protection of Elevators and Hoistways :"—

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE CONVENTION :—  
The guarding of elevators and hoistways is a subject of such magnitude and importance that it would be impossible to do justice to it in so short a space of time as can be devoted thereto on an occasion like this. Therefore I can only treat it in the most cursory manner, yet from a practical stand-point. In order to be presented intelligently, it is a question that requires to be divided and treated separately, as elevators and hoistways are somewhat foreign to each other in their relations.

As I proceed I will endeavor to show what can be done to make the elevator comparatively if not positively safe. The subject has been one of great interest to me for some time, and in my district, as a result of orders issued from our department, a number of ingenious devices have been invented with the view of supplying the created demand. However, the question of guarding the elevator sufficiently and securely depends as much upon knowing what to disapprove of and to condemn, as in knowing what to accept and recommend. Accidents of the character we would prevent occur in many different forms and from different causes. Therefore the subject requires to be treated from different stand-points.

It may be truthfully said that no two happen alike, and while it is possible to devise appliances which, in a general way, will meet every requirement, no inflexible rule can be laid down as affording an absolute preventive under every imaginable circumstance. With the most desirable and applicable inventions at our service, much must be left to the judgment of the inspector, for contingencies will occasionally arise which possibly have never before attracted his attention. However, a general principle of treatment may be arrived at, and under similar circumstances and conditions the effectual guard in one case will be an effectual guard in all others.

To best know how to apply guards to the elevator it is necessary to know what to guard against, which I shall make an effort to properly explain. Persons are frequently caught between the floors and the elevator in its ascent. It is generally their feet or limbs which suffer in this respect, caused from projecting them over the edge of the platform. This could be obviated by providing a flaring casing around the elevator opening under the floor, the said casing to be suspended from the inside



edge of the floor opening, expanding outward, funnel shaped. I have recommended in some cases that this casing be made of sheet iron, ten to twelve inches wide, expanding at its lower edge four or five inches so that the contraction would be sufficiently gradual to move objects projecting over the platform sufficient to clear the opening. There is no elevator but what can have such an attachment, but to be effectual it must be made of material that is durable and sufficiently strong and rigid to accomplish what is designed. No elevator opening should be wider or larger than to allow for sufficient room for the elevator platform to pass through, which should be sufficiently large to fill the opening. No cause can be offered why the opening should be larger than will pass the platform through, and, not being otherwise, the device suggested can be adjusted under any floor. I have had this attachment provided in one case, fastened around and under a circular opening in an iron floor, through which holes had to be drilled in order that the proper fastening could be effected. It will be found an excellent and perfect protection.

Next we take up a more difficult subject to handle. Persons have been crushed under descending elevators, mainly because of passage or door ways opening directly under them, leading from shop to shop, or from shop to yard, etc. To prevent such accidents several suggestions can be offered. The elevator could be moved to some less dangerous location, but this would be objected to in most cases on the score of the expense it would incur. However, if a door can be opened in any other part of the factory that would serve as well the purpose for which the door opening through the elevator is used, such a door should be opened, and the one through the shaft walled up. Should it be necessary, however, to maintain such a door as a convenience for loading or unloading at the elevator, gates and casings should be adjusted to completely enclose the landing, so that the passageway through the shaft could not be used as a thoroughfare. If the doorway is necessary as an exit from the shop, then the elevator should be removed, or the gates so adjusted that a person could pass out of or into the shop only when the elevator is on the first floor, and there securely locked. The kind of gate I would recommend I will explain later. While it may be very convenient to have an elevator located as described, it also may be very dangerous, and if a manufacturer will insist upon such a convenience, I regard it our duty as inspectors to have it so thoroughly guarded as not to be a death-trap, irrespective of the expense it may involve.

Serious accidents frequently occur from persons being struck by materials falling through the shaft from floors above. To avert this I am decidedly of the opinion that every elevator opening should be cased from the floor sufficiently high that nothing can roll or bound over, and the gate in front so constructed as to rest on the floor. Accidents from this cause would then be of a rare occurrence.

The most important and perplexing question we have to consider in this direction is persons falling through the elevator well or shaft. Possibly more accidents happen from this source than all others, and possibly, too, it has received more attention from inventors. I have visited but few factories where I have not found some attempt made to guard against accidents of this character, mostly ineffectual for the purpose designed, and in too many instances positive obstacles in the way of securing safe and practicable devices. Oftentimes, too, they are of themselves the cause of very serious accidents. For example: many persons have gone to their death by opening hinged doors leading to the elevator,—supposing they were going into an adjoining room or stairway, and stepping off of the floor into the shaft. For this reason I disapprove of the door arrangement everywhere, and though there be an operator on the elevator whose duty it is to keep them closed, too frequently have I found such doors unlocked to regard them safe or reliable. Even the slide door, which the operator is supposed to close and lock every time he leaves a floor, I have frequently found partly open, and in some factories I have found the locks on such doors entirely worthless. Where manufacturers insist that doors must not be removed because they afford a source of fire protection, or can be used to prevent draughts, I ignore them so far as a means of preventing accident to life or limb. Hatch covers adjusted to automatically open and close with the elevator are more acceptable, yet I do not approve of them, as they present new features of danger. Not long ago, in my district, a man broke one of his lower limbs while attempting to cross the floor over the elevator opening, protected by a hatch cover. In this shop I ordered a railing to surround the opening, with a gate in front, and especially did I insist on this when the objection was made that it would require too much room in the shop.

Bars, whether attached with hinge or not to the elevator casing, I regard as no protection whatever. In the majority of shops they can be found at any time removed or open. Bars even with automatic attachments to open and close them will not prevent material falling through the opening, nor, for that matter, persons under all circumstances. I can give a case in point where an employee fell through from a second to a first floor while the automatic bar arrangement was closed. As a safe, efficient and practicable well or shaft protection, I will only recognize a gate in front of all such elevator openings which will close and securely lock automatically with the removal of the elevator platform from any floor.

Chief McDonald of Ohio, realizing that to be consistent in our orders we should be able to present therewith a plan or device which would completely meet the requirements, has invented a gate which I am convinced will give general satisfaction in that respect. In pre-

senting it here for your examination I desire each present to remember that it is but a model, but the principle of its operation is correct, and after it has been carefully examined I think it will receive the approval of this convention. You will perceive, of course, that we do not provide for the automatic opening of the gate. This is because we do not approve of it. A gate should remain in position until it is required to be opened for use. There is no reason why it should open automatically, as there is nothing gained by such operation. Such gates are necessarily complicated and soon become deranged when their use is abandoned for a time, and they then become a source of more danger than if they had never been a protection, and to provide for such a useless arrangement would prevent adjustment of a lock attachment. It must be apparent to every one why the gate should be locked when the elevator is away from the floor, for, thus locked, it cannot be thrown open at will. If the machine is to be operated from the front on any floor, the locked gate provides a protection between the operator and the opening until the elevator arrives where he wants it. Not many months since we had an accident to a boy in Ohio, who fell through an elevator shaft. The gate in front was open, and the lad attempted to operate the elevator from the front. Had there been a locked gate on this elevator it is plain to be seen there would have been no accident, as the gate would have been closed. The objection has been raised that an employee, looking over the gate to discover at which floor the elevator is located, may have his head caught between the gate and the descending platform. To avoid this we propose to have a bell attached to the platform, of a distinct and peculiar intonation, to warn employees of its being in motion.

Gates in every case should be no less than four feet high from the floor, and the casing surrounding the elevator should be equally as high. If goods are landed on two sides of the openings, gates should be put on on both sides, and no opening allowed through such casing unless provided with a gate having an automatic self-closing and self-locking attachment.

There should also be, in connection with every elevator, an alarm bell on every floor, which should be rung by the person requiring its use before it is removed from any floor. The alarm should be made on the floor at which the elevator is stationed, and sufficient time be allowed for response from said floor to show that it is being used. And if such response is not received, the person giving the alarm should give a second one, and then have the right to use the elevator. I have been in so many factories, and especially in power blocks, where the elevator has been moved without indication, that I consider it essential to safety to recommend the adoption of some such an alarm system unless the elevator is controlled by an operator.

I will now take up the subject of hoists. In Ohio we consider the hoist is simply a rope and hook attachment for elevating purposes. The hoistway should be cased up at least two and one-half feet from the floor to completely surround the opening, substantially constructed. It may be covered with a trap-door to prevent draughts or as a fire protection. All material should be hoisted clear above such casing, and thus landed to the floor. If the hoist is on the outside of the building, a platform should extend from the window or doorway, and be railed on every exposed side, having a casing as already described surrounding the opening in the extended floor. The casing should be built close to the edge of the floor to prevent any one standing within it. This arrangement in the factory would be a preventive against persons falling through hoistways at night-time.

In conclusion I will remark that I have little faith in any so-called protection or guard on any machine, much less an elevator, that requires the care and attention of some one to adjust or operate. Experience and close observation have taught me that under all conditions in life men become, by continual contact therewith, so familiar with danger as to disregard it. The consequence, sooner or later, in almost every instance, is neglect of duty, and of that neglect frequently an accident of a deplorable character. Therefore it is that I favor automatic appliances as guards generally, and believe it to be the duty of inspectors, wherever there is a demand therefor, to apply their ingenuity in devising them. Knowing best, as we ought from the nature of our employment, what is required to avoid danger, we should be able at all times to have our remedy practically at command. The elevator, in this respect, deserves our attention more than any other machine in the factory. Its dangerous character I need not dwell upon, for scarcely a day passes but the press has to record some painful and impressive reminder of this being true. However, it cannot be too forcibly presented to our minds that the solution of providing suitable guards for elevators and hoistways wholly depends upon the inspector's efforts in that direction. Much more could be said on this important and interesting subject, yet I hope sufficient has been said to produce general discussion, and that we shall all thereby be materially benefited.

Inspector Mullen of Massachusetts moved that each member be allowed five minutes for discussion on the papers presented, but if deemed necessary that the convention grant further time. Motion was carried.

Chief McDonald of Ohio explained his model of elevator gate.

Chief Connolly of New York remarked that the protection of elevators was a matter of great importance. Elevator gates were forbidden in New York because of their tendency to chop off heads. New York's factory law requires shafts to be bricked up and provided with closing doors, and also self-closing horizontal iron trap-doors on each floor.

Inspector Buxton of Massachusetts spoke on the various appliances for elevators and hoistways in Massachusetts.

Inspector White of Massachusetts also spoke on the subject, that some means should be devised for the better safety of persons on elevators.

Chief McDonald of Ohio, also Inspector Davis of the same State, expressed their views upon the matter.

Vice-President Franey of New York having taken the chair, President Rufus R. Wade took the floor, and made some important and interesting remarks on the importance of ventilation. Inspector Coon of Massachusetts was called upon to read the following paper prepared by President Wade on that subject:—

#### VENTILATION PRACTICALLY CONSIDERED.

Experience and careful observation have made clear the fact that the size of air inlets, outlets, ducts and shafts for the successful ventilation of school-houses, halls or audience rooms should be determined by the number of persons to whom air is to be supplied, and that the maximum seating capacity of such occupied apartments must be the basis. This number multiplied by the number of cubic feet of air required for each person will give the total amount to be supplied, and from this sum the size of openings, etc., can be established.

For example, take a school-room capable of holding fifty pupils; whether the room is large or small, or the ceiling is high or low, the quantity of air in the room is of little moment when compared to the total quantity required when the room is occupied. The best authorities tell us that not less than thirty cubic feet of air per minute is required for each person to maintain even a reasonable degree of purity. In air vitiated only by human respiration double this amount is required to maintain an approximation to out-door purity; taken, then, the low standard mentioned per minute for each individual, fifty persons would

require fifty times thirty, or 1,500 cubic feet per minute. Take the dimensions of the ordinary school-room occupied by fifty pupils, which will vary but slightly from the following figures,—length, 30 feet; width, 28 feet; and height, 12 feet,—and we find the cubic contents 10,080 feet. Dividing this sum by 1,500, the amount of air required per minute by the occupants of the room, we find as the result less than seven, representing the number of minutes during which the air of such a room would retain a reasonable degree of purity without being changed by the renewal of pure air. Regardless of the size of the room we should supply to fifty persons occupying the same 1,500 cubic feet of air per minute, and this amount should be the minimum. Let us fully understand that the first requisite is ample inlets and outlets, remembering that these openings depend not only on the amount of air to be introduced and removed but upon the rate air is made to move.

In estimating the rate of air motion, five feet per second should be the minimum, although if the enlargement of the foul air outlets be of ample size a much higher rate of inflowing air can be estimated. The number of square feet for the foul air outlets can be determined by dividing 1,500, the amount of air required per minute for fifty persons, by the amount of air which will pass out of a room through an opening one foot square at the rate of five feet per second. Multiplying five by sixty, as there are sixty seconds in a minute, and we have 300 cubic feet, which is the amount of air that will pass out through an opening one foot square. By dividing 1,500 by 300 it will give five feet as the size of the foul air outlets required for a room occupied by fifty persons. This means five feet of actual, clear, unobstructed opening. The positions of foul air and fresh air inlets are matters of importance in the ventilation of school or large audience rooms.

In large school-rooms, halls and audience rooms, it has been found by practical experience and observation that the best results are obtained when fresh air inlets are placed six or eight feet above the floor level, and the foul air outlets near the fresh air inlets and at the level of the floor. Having provided for the removal of the vitiated air, inlets for the supply of fresh air must be provided; and in estimating the size of fresh air inlets we should not forget that the moment the current of vitiated air is drawn from the room air will find its way, independent of properly constructed channels, through every crack and opening in every part of the room and around closed windows and doors. This additional amount of air received should be taken into consideration in estimating the size of fresh air inlets. As a rule a deduction of one-fifth the area of the foul air outlets for the size of fresh air inlets has proved sufficient for inflowing fresh air.

As warm air when taken into the room goes at once to the ceiling, and in the cooling falls to the floor and is unfit for respiration, the openings for removal of vitiated air should be at the floor level.

A Waltham, Mass., primary school-house, a wooden structure two stories high, contains six rooms and is warmed by furnace heat. A room for fifty-six pupils has an area of 11,760 cubic feet. The air is admitted to the room at the inner wall eight feet above the floor, through an opening with an area of 4.16 square feet. The air is removed from the room through two openings and at the floor level, each with an area of 2.50 square feet, each pupil receiving an air supply of 50 cubic feet per minute without any perceptible draught.

From the above computations we are enabled to establish the ratio between the number of persons occupying a room and the area of the openings by which the room is to be ventilated. By the use of mechanical means in methods of ventilation it will be seen that the size of the openings for fresh and foul air ducts can be materially reduced. For example, the Brookline, Mass., Town Hall has recently completed a system of ventilation which has given excellent results, this audience room having an area of 288,020 cubic feet, the seating capacity of which is one thousand persons.

"The total area of fresh air inlets in the clear is 19.55 square feet, represented by eight openings averaging 2.44 square feet. The total size of the foul air outlets in the clear is 28 33 square feet, represented by nine openings averaging over 3 square feet. The metal ducts from the hall, with those from other sections of the building, are connected with a chamber in the attic 11 feet 5 inches long, 10 feet wide and 5 feet deep, through which the air is exhausted from the hall by means of a fan, 6 feet in diameter, of the A. Hun Berry pattern. This is operated by an electric motor, belted to an Evan friction-cone pulley, regulated at the present time to run the fan two hundred and fifty revolutions per minute; and it can be so adjusted as to operate the fan at any speed to within a reasonable number. All the machinery, together with the fan and air chamber, is suspended from the roof trusses, padded with rubber to deaden the sound caused by the running of the motor and fan. From the base of the hall there is carried away 8,000 cubic feet of air per minute, changing the atmosphere of the room about once in thirty minutes, and this without the use of ventilators in the ceiling. Should it become necessary to remove the air quicker, then these additional openings can be brought into use, and with a velocity of six hundred feet per minute the fan will remove 17,000 cubic feet of air per minute."

As a rule, in our public halls, audience rooms and school-houses, the fresh air as it enters the room is warmed by furnaces or steam heat. Whatever system is adopted for steam or furnace heat, we should not forget that the upright shaft is one of the most important factors in obtaining successful results for the removal of the vitiated air and also to make room for the warm fresh air to enter the openings intended for its use.

The air thus warmed entering through inlets properly located will circulate through the room, and the bad air is drawn to the bottom of the warm ventilating shaft. Let me repeat that the best results have been obtained where foul air has been taken from the floor level instead of the walls or ceiling of the room, for then the cold air that has accumulated will be removed and a more equable temperature in all parts of the room be established. Coils of steam pipe, or furnaces in basements with an ample supply of fresh air passing around them, are conveyed by pipes or ducts of sufficient size to registers ample to admit a large volume of air at a low degree of temperature, thus avoiding high velocity and the burning out of the vital qualities of the pure fresh air. It should also be attempted, when practicable, to place all fresh air inlets 6 or 8 feet above the level of the floor and in the walls central in the building. Warming by steam radiators (direct heating) in the sides or in the centre of the room, making no provision for the admission of pure air or the removal of foul air, is the worst form of all warming apparatus. The heating of ventilating shafts by coils of steam pipe or by stoves has been found all that was required to secure the removal of vitiated air from the rooms to be ventilated. An ordinary chimney used for a ventilating shaft surrounding the smoke pipe of the furnace has often proved valuable in ventilating.

Cold air shafts are not to be relied upon. In estimating the amount of draught in the shaft, the height of the shaft and the amount of heat must be determined. Ducts for the removal of vitiated air in different stories should not open into the same ventilating shaft, as it has been found that under various circumstances the foul air from rooms below will enter.

The question will undoubtedly be asked, what should be the rule in estimating areas of outlets for the removal of vitiated air in occupied apartments?

That must depend on the number occupying the room. If each individual requires 30 cubic feet of air per minute this would make 1,800 cubic feet per hour for each person. With this minimum basis of 1,800 cubic feet per hour or 30 cubic feet per minute for an audience room the seating capacity of which is one hundred, the air moving at the rate of 5 feet a second, it would require a ventilating shaft the area of which would be 10 square feet. If the hall or audience room will seat one thousand, it would require an area of 100 square feet, represented by forty foul air outlets  $2\frac{1}{2}$  square feet each, or ten of 10 square feet each.

How large must the shaft be? This depends on the degree of heating and the height of the shaft. If you multiply the square root of the height of the shaft by the square root of the difference between the temperature of the air outside and inside, and then divide by four, this will give the rate of movement of air per second.



Learning the number of cubic feet of air vitiated, as well as the rate the air is made to move in a given time and place and the rate the air is spoiled by respiration, the area of foul air outlets can readily be determined.

The close connection between proper heating and proper ventilation has been so much discussed by competent authorities that a common agreement has been reached that the two cannot well be separated in any successful scheme, and in an article by Prof. S. H. Woodbridge of the Institute of Technology, published in my annual report of 1889, the subject of warming and ventilating small school-houses is ably and scientifically treated.

In conclusion it can be said that ventilation rests on as scientific a basis as any other branch of mathematics, and its principles can be as easily understood.

President Wade again spoke briefly upon the subject, and stated that the best results had been obtained in Massachusetts.

On motion, the paper was referred to the committee on resolutions.

Inspector Weinthal of New Jersey read the following paper on

#### MODEL SCHOOL-HOUSES.

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE CONVENTION:—The present age is one in which questions concerning the education of the masses may be said to demand considerable attention. To obtain this end, the important step is to provide buildings suitable for the needs of every branch of education, and so arranged as to facilitate the workings of the several departments. It is certain that the more these matters are understood the greater will be the importance attached to them.

The subject of this paper is an all-important one, and it is the purpose of the writer to deal briefly with the several heads which follow and are without question important factors in the erection of an edifice to be devoted to educational training. Investigation has shown most conclusively that improved dwellings mean increased length of life and a greater capacity for usefulness and enjoyment. Sound food and pure water are essential to good health. To a much greater extent it is the case with the air we breathe. A deficient or impure supply of air means failing energy of mind and body, and general incapacity for the

performance of the duties of life; this is particularly so in the case of the young, who need fresh, wholesome food, pure air and moderate exercise.

The selection of a site is of great importance. Let it be in a good, dry, healthy location, where there are but few sewer lines, factories or workshops, which emit noxious gases and pollute the air, and where the noisy clang of hammer and anvil cannot disturb the exercise or thought for study. The soil should be dry and sandy, not loose, earthy material, from which spring foul gases to permeate the entire building. Low or swampy ground should be avoided; such ground requires additional cost to provide proper foundation, which expense could with better economy be expended towards a suitable site.

Much study and care is required in the planning or arrangement of the several parts of a well-devised school building. The general plan should be as simple and straightforward as possible; all irregular rooms, passages or eccentricities of plan for purpose of exterior effect should be avoided. The main entrance and exits should be wide and on a direct line with staircases; and in all cases the doors should open outward and lead direct to main street, or to yard or passages which communicate with street. The school or class rooms should be of ample size for a maximum capacity of sixty pupils, with an allowance of at least 1,200 cubic feet of air space for each pupil. The arrangement of these rooms to be in direct communication with the main corridors and convenient to staircases for exit.

The question of isolating the class room is dependent on the grade of instruction and also on the needs of the locality in which the building is erected. In small towns or cities where it is necessary to economize, the class rooms may be arranged for assembly purposes by means of large glazed sliding doors, so as to form an assembly room on each floor. It is desirable, however, to have a separate room sufficiently large to accommodate the entire school, which shall be used for assembly purposes only.

Play courts for exercise should be provided where the site will not allow of an out-door recreation ground. These courts should be, if possible, placed on a level with the grade, and well lighted and partly opening into uncovered yard at rear, so as to allow thorough ventilation and afford in some measures the benefits of out-door exercise.

The plumbing and other sanitary work should be as simple and complete as modern improvement can devise. The system of closets should be of the best manufacture; for this purpose I would recommend an open sink of iron, porcelain lined, with proper valves to regulate an automatic supply from a large tank, and connected on a direct line with main sewer. The space for location of closets to be enclosed in masonry and not open directly into play courts. Special means of ven-

tilation should be made by flues connected direct with main vent shaft. Any complicated traps or contrivance which hinder the rapid discharge of sewerage are dangerous to health. Every soil pipe to be carried full size above roof, and will act as ventilators to main sewer line. It is to be noted that no provision is made for vent of street mains, except openings, which in many cases are placed near windows, thereby allowing foul gases to enter premises. The traps in all cases to have back air vent and should open where practicable into a common stack.

The supply for school fixtures and for drinking purposes should be independent. A main water supply of at least two inch pipe should be run at two points of building with outlet on each floor, and with a sufficient length of fire hose coiled ready for use in case of fire. The means at hand and prompt action may avoid a calamity.

Ample wardrobes placed so as to be accessible, and without interfering with the discipline of school, are necessary for each class room. Separate rooms and wardrobes should be provided for teachers' use.

The suitable and convenient disposition of a staircase has always been regarded as a difficult problem in the planning of a building. Its situation depends on the object of the building and the purpose it is intended to serve. The location of staircases in many buildings of a public character is too often overlooked; it is often a convenience of plan rather than the convenience and safety of the public.

The stairs in many cases are cramped with awkward landings and poorly lighted. For a school building they should be ample in affording speedy exit from each floor and with more than one entrance if possible to stair platform. By all means have the staircases for pupils fire proof; these may be of slate or iron, — the former in the writer's opinion is better, — enclosed in brick walls of fire-proof partition blocks, and should be with easy rise and wide platforms, without winders and with double turn. This latter method has been used in several late improvements in school buildings and the advantage over long runs will be readily seen.

The staircases should not be narrow, four feet six inches is sufficiently wide, and five feet as a maximum width, unless a central rail is provided. Where staircases of the above width will not permit a speedy exit, it becomes a necessity to provide additional staircases rather than increase the width of one or two.

The staircases, and especially at start and at landings, should be well lighted. Dark staircases prove to be veritable stumbling blocks. A main or public stair should be placed convenient to central portion of building for the public or teachers, and if needed may be used as an additional exit. The building in all its parts should be of safe and

thorough construction and of such design as will at first sight clearly indicate its purposes and use.

Owing to necessary economy in many cases it is quite out of the question to build what is known as a fire-proof building, having iron beam construction and fire-proof arches and brick or fire-proof partition walls; but as already made mention, the stairs should be fire-proof and as little wood-work as possible made use of.

It would be well to consider the method of slow-burning construction, which consists of heavy girder and planking to floor with concrete filling and fire stops to prevent spread of fire from floor to floor. Where the necessary funds will allow, the furrings to walls and ceilings and all partitions should be of fire-proof blocking, or at least all plaster put on wire lathing instead of wood laths.

The finish of walls should be in cement and so as to be made a smooth surface and washable in order to clean down without injury; the finish of ceiling if not on fire-block furrings should be of metal, which is now inexpensive and of pleasing design. The wall surface, where some occurs between windows and on partitions, to be finished for black-board use from sill of window to height of three feet six inches.

In place of the usual wainscot of wood, a finish of mould on line with window sill and the wall to floor, to be done with Keene's cement in color which would not only be durable but prove effective in checking spread of fire.

The doors from class rooms to open into spacious corridors; these doors as well as outside doors to open outward.

The principal requirements of a school building are light, heat and ventilation. A well-arranged building must necessarily have proper light; the light is dependent upon the location of building, but the arrangement of rooms should be so devised that the light will be distributed to the furthest sides of the room and at the left of the pupil.

The windows should be as wide as construction will permit, about three feet six inches above floor level and within a few inches of the ceiling. Special attention should be given to the lighting of all corridors and from windows opening into the outer air or large ventilating skylights.

The subject of heating, or more properly speaking heating and ventilation, has received much attention and to-day in the hands of many is purely experimental in practicable uses. That the subject is not fully understood is one reason for the many failures to successfully heat and ventilate buildings of a public character.

Before proceeding to discuss the difficulties of ventilation let us consider the laws which govern the gases of the atmosphere. Seventy-nine per cent. nitrogen, twenty-one per cent. oxygen and one volume of carbonic acid in two thousand five hundred volumes of atmospheric air;

oxygen is the most important, being the sustaining power of animal life, nitrogen acting as a dilutant. Air having passed through the lungs becomes changed, the oxygen lessened three to five per cent and this is replaced by carbonic acid; the nitrogen remains unchanged. An ordinary person makes about twenty respirations a minute, passing at least a pint of air from the lungs at each respiration. Thus will be seen the necessity of changing the air by which we are surrounded.

The air breathed is warmed and becomes lighter and consequently rises and passes away from us.

Carbonic acid gas is about one and one-half times heavier than ordinary air, and the tendency is to separate from the vitiated air and fall to the lower part of the room; this, however, is not always the case, for when mixed with other gases, as air expelled from the lungs and warmed, its property is to rise.

The object of ventilation is to restore the air to its natural purity, that is, to remove the vitiated air and supply fresh air. In some respects this can easily be accomplished, but to do so thoroughly, and without inconvenience to the pupils, is not an easy task.

Ventilation may be considered of two methods, the mechanical and the natural; the former may be successfully carried out, where power is provided, and is generally conceded to be the more positive and efficient. With natural ventilation, it must be understood that, of the two columns of air, one warmer and lighter than the other, the lighter ascends and the colder or heavier descends.

The air to be expelled must have room supplied by a like amount of air to take its place. There must be an inlet in order that the outlet may work. The problem is the location of these openings.

Experiments have proved that the vitiated air invariably rises to the highest part of the building, and that when proper inlets and outlets are provided, the rate at which the air passes through the building is increased in proportion to the height and difference and temperature of the internal column of air over that of the external. The longer and narrower the shaft for carrying off the vitiated air, the better its operation; the air to be taken from as low a point as convenient, and then discharged into the building as near the floor as shall be found expedient, the vitiated air being taken away at the highest point. To overcome the difficulty of inconvenience to pupils of taking the air in at floor level, the openings should be conical or wedge shaped, so as to distribute the air over a large space and without draught.

For large class-rooms, where it is necessary to remove a quantity of air, a large ventilating cowl or a number of cowls should be placed on the roof, with discharge ducts leading to same from the flues in rooms; the ventilators to be of such design as will effectually keep out rain and snow, and not merely arranged to prevent down draught, but to be

movable, and assist by means of the wind power in drawing off the vitiated air in rooms. Where the motive power is not sufficient, the quantity of air passing through may be increased by means of gas jets or coils of steam pipes placed at base of main stack.

The usual method of heating by means of a chamber in basement having the required heating surface, and bringing fresh air in contact with it before it is allowed to enter school-room, is not altogether successful. The air entering rooms is not always fresh and cool, but oppressive, being robbed of its invigorating qualities because heated in excess of the temperature required, to make up loss of heat through the cold surface of pipes, windows and other openings. The air, by a natural law, rises to the ceiling, its place being filled by cold currents below; the floor is cold, on the principle of the old fireplace.

One of the best systems of direct radiation is by means of small pipes and a series of radiators placed under the windows of the class-rooms and in corridors and other apartments.

In the basement, locate one or two tubular boilers with steam pressure of about five pounds, the steam being conveyed through pipes run along basement ceiling and connected to radiators on each floor; the radiators to have valve for turning off steam at pleasure; the lower part of the window sash to have a small frame to fall inwards and allow the fresh air to enter clear above radiators; this inlet to be regulated so as to diffuse air over the rooms and to take an upward course, it then falls in gentle volumes fresh and pure, while the floors and walls on the coldest sides are warmed by direct radiation. The vitiated air escapes through flues as before suggested, and is carried to shaft or duct in roof. In the system of mechanical ventilation, the flues may be constructed on the above principle and connected to ducts either at ceiling of basement leading into large shaft opening above highest point of roof, or by means of the roof space used as an exhaust chamber. At the outlet of these shafts, either in basement or roof, as the case may be, an exhaust fan or air propeller to be placed, and the capacity of flues, ducts or air shaft dependent on the amount of air to be removed, which should not be less than 1,200 to 1,500 cubic feet per hour for each pupil. The wardrobes, corridors, toilet-rooms, play-courts to be also ventilated as above, and, if possible, the wardrobes to have open-air ventilation by means of window.

The upper transom sash work of windows should have sash hung at bottom and open inwards so as to give an upward current to the air, and transom sash should be provided to doors and windows so as to allow cross ventilation.

Much more could be said in the matter of the several methods now in use for the heating and ventilation of buildings; a simple and inexpen-

sive method has been suggested, which would meet ordinary requirements and prove effectual and serviceable.

The class of buildings which the author of this paper has in mind would be such as is now being erected in cities and towns throughout the country of from ten to twenty thousand population.

The same principles govern every building intended to be occupied by an assemblage of people, whether to be located in a small rural village or in the crowded precincts of a great city.

As before mentioned, let the building of a school-house be as simple in plan and construction as the site will allow. All excessive and costly ornament should be omitted, and in its place good, durable material, wrought by skilled artisans into an harmonious and pleasing design, should proclaim the greatness of our homes of free education.

J. S. WEINTHALL.

The paper was referred to the committee on resolutions.

On motion, convention, at 12.30, adjourned for the purpose of accepting the invitation to visit Blackwell's Island; the convention to meet again at 9.30 Friday morning.

ISAAC S. MULLEN,  
*Secretary.*

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NEW YORK, Aug. 29, 1890.

Convention opened at 9.30 A.M.

Vice-President Franey of New York in the chair.

On motion of Inspector Weinthal of New Jersey the reading of the minutes of last session was dispensed with.

In the absence of Chief McDonald of Ohio, who was to read a paper, Inspector Moore of Massachusetts exhibited and explained a device for extinguishing fires.

Several inspectors questioned Inspector Moore in relation to the device presented.

Chief McDonald of Ohio being present rose to a question of privilege relating to a statement in the "New York Herald" regarding the State of Ohio on elevators. He thought that an injustice had been done him by the press. He would assure the members of the convention that if the convention met in that State that the press would do them justice.

Chief McDonald read the following paper on the "Construction of School Buildings: " —

THE CONSTRUCTION OF SCHOOL BUILDINGS TO PROTECT CHILDREN FROM THE DANGERS OF FIRE.

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE CONVENTION: — I cannot go into details on this subject as I should like, as it is a question of great importance, and to treat it properly would require far more time and space than would be possible to devote at this time. I am, therefore compelled to give but a meager description of what I consider would be a sound construction for school buildings from a fire-protection stand-point. The greater the number of persons congregated in a building the greater is the danger from an outbreak of fire or a sudden alarm, and it should therefore be the foremost desire of persons in charge of the construction of school buildings to secure a thorough, sound and substantial building, and to insist on the strict observance of all rules and measures known to have a tendency towards preventing calamities. This will apply with equal force to all buildings for the assemblage of persons for any purpose.

School buildings shou'd never be more than two stories in height. It is neither policy or economy. Land is plenty and comparatively cheap, and what is saved in land and building is expended many times in heating. To crowd children in the top stories of high buildings is wrong from any stand-point. They are constantly thinking of what their fate would be should the building catch fire. They hear the danger spoken of and are cautioned in their homes, and, in case of fire, their minds have been so fixed on their probable danger that those in charge, in my opinion, would find it a task to maintain that discipline which so characterizes our grand American school system, and in such event the result could only be imagined. It seems to have been the general and prevailing custom in former years to build school buildings of faulty and unsafe construction, their interior being of the most inflammable character, consisting of timber floor beams, floor boards, studded partitions, rafters, etc., with open furrings from basement to attic, as well as the space between the ceiling joists remaining hollow, furnishing wooden flues for mice, vermin, flame and smoke. By means of these many conductors a fire will spread unobserved until the entire structure has been enveloped in flame and beyond control. This general imperfect, criminal method of building should be universally condemned and stopped by law.

The question now arises, How shall school buildings be constructed to obviate such dangers and insure safety to their population? This can be accomplished in two ways; by the fire-proof construction, which is



rather expensive, therefore not so popular, and by the more moderate and almost equally as good, the slow-combustible or slow-burning method. There is considerable fallacy in supposing that so-called fire-proof buildings are indestructible by fire. Experience teaches that such is a mistake and that there really exists no absolutely fire-proof building material. We have, however, what is called a fire-proof construction, which is certainly commendable and really what it is claimed so far as practicable. From the necessity of economy we cannot always expect a fire-proof construction for school buildings, nor do I think it absolutely necessary for safety; but we should always expect and require a slow-burning construction, the principle of which is to absolutely prevent all hollow spaces between the wooden floors, partitions or furrings, and, in fact, to secure a good sound building construction. All outside cross and partition walls should be hard-burnt brick from the basement to the attic, carefully laid up in first-class mortar. The floor beams should be of hard wood, with double floors separated with strips with the interstices filled with mortar or concrete, and the under sides of the beam should be protected with a wire netting or lathing covered with plaster. All chimneys or flues should be plastered on the outside from the basement to the roof for fear of imperfect masonry, and in no case should the timber or wood-work in any wall or chimney breast be nearer than ten inches from the inside of the flue or chimney opening. All openings for gas, water, soil, hot-air and steam pipes, etc., should be made smoke-tight at each floor. The roof should be so constructed as to be water-tight and spark-proof, either of slate, galvanized iron or roofing tiles of terra-cotta. In using slate it will be found very advantageous if it be carefully laid over mortar. I would recommend roofing tiles of terra-cotta as the most preferable in case of fire. It is necessary that the greatest care be exercised in the number, size and location of exits, and there should never be less than two separate exits from the top floor to the ground, with separate outside or exit doors which should open out; and under no circumstances should any door affording exit from the school room or building swing into the room or building. The stairways should be separated from the building with brick walls, built of well-selected brick, from the basement to the attic, preventing smoke or flame from reaching the stairs; and, unless fire-proof, the under side of the stairs should be either covered with terra-cotta shingles or a wire lathing plastered over. The doors from every room, the stairways and approaches thereto, and all doors and escapes therefrom, in their aggregate width should be of sufficient capacity to allow any number of persons which can be accommodated therein to escape therefrom in two minutes, moving at the rate of four feet per second, and allowing four square feet of floor space to each person, then adding for hindrance two feet to the width of each opening, passage way, stair way or door.

Under this system you would always have two feet in width for every door or passage way for hindrance to start with; figuring exit as above described, would average one foot of exit to every eighty persons the building will accommodate, with, as before stated, two feet added for hindrance.

Rule: Divide the number of persons the building will accommodate by eighty, which will give the aggregate width of openings or passageways required, then to the width of each opening add two feet for hindrance, thus: if the audience is five hundred, divided by eighty gives six feet three inches for the width of escape. If there be but one opening it will be six feet three inches, plus two feet for hindrance, which equals eight feet three inches width of opening; and if there be two openings of equal width, they would be required to be six feet three inches, divided by two, which equals three feet one and one-half inches, and then the two feet for hindrance added to each would make two openings of five feet one and one-half inches, and so on with whatever number of exits there may be.

The construction, arrangement and operation of the heating apparatus should receive the closest attention, and especially that it be of sufficient size to properly heat without crowding, because, if forced to its utmost capacity, it will be liable to heat to redness and endanger the building. Stoves should not be set too near the wood-work, but when through necessity this must be done, the wood-work should be protected from the heat with bright tin. The top and sides of the furnace, whether metallic or brick, should be kept at a reasonably safe distance from all wood-work, inflammable partitions, ceilings, etc.; and where furnaces are bricked in, the walls should be at least four inches thick, built double or hollow, with an air space between. All cold-air boxes should be of either brick or galvanized iron. The use of wooden cold-air boxes should never be encouraged. Reverse draughts are not impossible, and in such event the wooden air boxes are liable to catch fire. Cold-air boxes should always be tight which is next to impossible using wood for that purpose, and for that reason alone metallic or brick air boxes are far preferable to wood. The mouth of the cold-air duct or box should always be covered with wire netting.

All hot-air pipes and register boxes should be made double, with an air space between, and hot-air pipes should never be placed at a closer distance than eight inches from all unprotected wood-work, and when the wood-work is covered with bright tin, the distance should not be less than four inches. For various obvious reasons, hot-air registers should be placed in the side walls and not in the floor. Particles of combustible materials and dust may readily find their way into such hot-air flues, and there ignite. All hot-air registers should be carefully set in a border of soap-stone laid in plaster of Paris. Much care and judg-

ment should always be exercised that the registers are never all closed at one time, when fire is burning in the furnace. Many mysterious fires have originated from this cause,— the overheating of hot-air pipes.

I am not an advocate of fire-escapes for school buildings, nor do I think such necessary under any circumstances when the building is constructed according to the above-mentioned specifications; but where the building is more than two stories high there should always be provided a suitable number of fire stairs, not less than seven-inch rise and ten-inch tread, which should be fire-proof, and located at an extreme point in the building, with easy access from the entire top floor, and at an extreme point of the exit stairs. In schools where it is necessary to employ a janitor or fireman, whose duties require their presence during school hours, some efficient system of extinguishing fire could be adopted with considerable propriety and force, and in case of fire would be found very advantageous indeed. Many serious conflagrations have been prevented by the timely use of extinguishers. I would recommend only such standard chemical fire extinguishers as are recognized by underwriters for that purpose. Great care and judgment should always be exercised that the population of a school building is not in excess of the escaping capacity of its exits. I fully appreciate the temptation to overcrowd school buildings when the attendance exceeds building facilities; yet such practice is extremely dangerous for a great many reasons, and for this one in particular,— it jeopardizes human life especially in case of fire, and for this reason school buildings should never be overcrowded. Apart from building construction, I consider discipline the most important factor in preventing calamities in schools; and it is with pride and pleasure that I extend a most deserving compliment to those in charge of our schools for the establishment and maintenance of a grand system of school discipline. To those people every parent is indebted. For, in my opinion, many accidents have been prevented by the fruits of good discipline. It is a grand sight to witness the efficiency of the school drill, controlled entirely by sound. The tap of the bell instantly calls the children to their feet and in position; another, and they are quietly and orderly moving to and from the building, unconcerned further than that they know their teacher, by the sound of the bell, has decreed that they shall file out of the building. I have actually known where, through the school drill, calamity has been averted. Many times, to my knowledge, in my own State, school buildings have caught fire, and in almost every instance I know the buildings were cleared of their precious population without accident or incident, through the medium of the school drill. I will not attempt to add one suggestion in this direction, further than to say that school discipline must be maintained, and that it should be the aim of our able school

superintendents to labor for its further perfection, which will materially solidify the already substantial foundation for school reform.

Before closing, I wish to call your attention to a great danger that overhangs a much-needed reform in our system of construction of school buildings. Many times when conversing on this subject I have been met with the argument that school buildings rarely ever burn down, and that school children are subjected to but little danger from that cause. I readily concede that school buildings rarely ever burn down, and that accidents from fire to school children can be classed as a minimum, yet these facts should not be allowed to mislead. A school building is just as liable to fire as any other building of the same construction, and there is no law or precedent why these buildings are not liable to the ravages of fire at any time; notwithstanding the fact that many of our school buildings have as yet escaped the wrath of flame, which I credit to kind Providence, and not to the efforts of mortal man. To jeopardize the lives of hundreds of children from such a pretext should not be tolerated. It is a dangerous precedent, and may result, at some time when least expected, in a fate equal to that of incineration or worse. It should be borne well in mind that protection from fire is one of the most important features coming under the head of school hygiene, and I sincerely hope it will receive that consideration it so justly merits. It seems to me, and very clearly, too, that buildings where little defenseless children are to be sheltered should be planned and constructed not only in conformity with existing laws and domestic hygiene, but with every view for their protection from the dangers of fire.

Inspector Mrs. McEnery of Pennsylvania spoke briefly on the subject.

Deputy Commissioner Campbell of Maine thought that fire-escapes added more danger than safety to a conflagration.

Inspector Dyson of Massachusetts thought that the suggestions in the paper read by Chief McDonald were good ones, and to a great extent was in favor of them.

Inspectors Buxton and Coon of Massachusetts and Deputy Commissioner Campbell of Maine carried on the discussion.

Chief McDonald of Ohio remarked that Ohio was agitating the matter of school-houses and their proper construction.

Inspector Ellis of Ohio read the following paper on "The Speed of Elevators : " —

### THE SPEED OF ELEVATORS.

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE CONVENTION : — The speed of elevators, practically speaking, is a technical question, controlled to a considerable extent by the design and construction of the machine, and as variegated as the different kinds of elevators manufactured. It is, however, a very important question, and one that concerns the safety of millions of people who are compelled to daily use this mode of conveyance. There are two kinds of elevators that would be recognized under this subject, — the worm and gear, and hydraulic elevators, the latter being known in two different classes. First, the compound hydraulic, which is in most general use, and especially as passenger elevators, which consists of a short cylinder and piston, with a complication of shives and ropes. Second, the direct hydraulic, which consists of one deep cylinder, sunk into the earth, with one long direct piston the length of the distance to be reached. For various reasons obvious, it will be necessary to treat each separately. A worm and gear elevator should travel from fifty to seventy-five feet per minute, controlled according to its design and the durability of its construction. On the ordinary worm and gear elevator, to accomplish from fifty to seventy-five feet per minute, the worm shaft will make from four to five hundred revolutions per minute. To increase the speed of a worm shaft above five hundred would also comparatively increase the speed of the gear, which would, in all probability, cause the worm to heat, thereby cutting and destroying the gear. I have known where both the worm and gear have been so damaged from this cause that it has stripped one or the other of its teeth, allowing the machine to run down, mashing the platform, and materially damaging the entire machine, besides seriously injuring those who were on the elevator. This is about the only thing of importance to consider concerning the speed of worm and gear elevators, but we must have a minimum and maximum speed, controlled, as I have said before, by the design and construction and especially the pitch of the worm.

Compound hydraulic elevators should average from one to three hundred feet per minute, as with the other, controlled according to the design and durability of construction, coupled with the aggregate height the elevator ascends, together with the number of intermediate stops. A compound hydraulic elevator, with a lift of from forty to sixty feet, should never make more than two hundred feet per minute in speed. Such an elevator would make its entire lift from bottom to the top of the shaft in from thirteen to nineteen seconds. The starting and stop-

ping is so close together that to make more speed would cause a great shock in stopping, which would strain the cables as well as the engine, which might derange or render the safeties useless, and in fact liable to bring about a sad state of affairs. The cab and attachment of the ordinary passenger elevator weighs from twelve hundred to two thousand pounds. For an illustration: suppose we have an elevator with a hundred-foot lift, and which travels three hundred and fifty feet per minute (which I claim is fifty feet faster than any compound hydraulic elevator should ever travel to insure safety, the opinions of some elevator builders to the contrary notwithstanding), what length of time would it require from the starting and stopping point, running the full one hundred feet, not considering the intermediate stops, with such an elevator? It would require but a fraction over sixteen seconds. Water is a solid body and by no means flexible, and for an elevator to travel one hundred feet in sixteen seconds, lifting two thousand pounds, the momentum of the water might cause a terrific shock, almost beyond description, and possibly burst the cylinder, strain the cables and their fastenings, etc., or otherwise render the engine unsafe. Now, consider that we travel but half of the distance — fifty feet, the lift would be accomplished in about eight seconds from the opening and closing of the valves. Is it not self-evident why the maximum speed of compound hydraulic elevators should never be higher than three hundred feet per minute?

Direct hydraulic elevators may travel from seventy-five to one hundred and twenty-five feet per minute with ease and safety, but the speed of the direct elevator must be viewed materially from the same stand-point as the compound hydraulic; however, there are different circumstances governing each. A direct hydraulic piston will average from three-sixteenths to five-sixteenths of an inch in thickness. A ten-inch piston will weigh from thirty to fifty pounds to the foot, therefore a piston fifty feet long by ten inches in diameter will weigh from fifteen hundred to two thousand five hundred pounds. You can add from five hundred to two thousand pounds more for the platform or cab, as the case may be. We have then from two thousand to three thousand five hundred pounds, without the weight of the load being hoisted. With such a machine, with a fifty-foot lift, travelling one hundred and twenty-five feet per minute, it would require but a fraction over twelve seconds from the starting and stopping of the machine. Imagine such an elevator travelling faster. Would not the shock in stopping be terrific? And when stopping near the top landing would there not be some danger of snapping the piston? Decidedly, yes.

Hence the speed of elevators, in my opinion, should be, the worm and gear from fifty to seventy-five feet, the compound hydraulic from one to three hundred feet, and the direct hydraulic from seventy-five to one

hundred and twenty-five feet per minute, and to reach the maximum they should be exceedingly well built.

Automatic floor locks for valve ropes should never be used on elevators travelling above one hundred and fifty feet per minute. The sudden stopping and the momentum is liable to reverse the valves and leave the machine to the mercy of the water, which is liable to cause a disaster. Valves should always be opened and closed slowly, consuming in such operation about two seconds, which will prevent a shock in starting and stopping. It is a common occurrence to hear elevator men talk of running compound hydraulic elevators from five to six hundred feet per minute, which sounds very well to one not well acquainted with the machine; but such is a delusion and not practicable. I am well aware that many elevators are in use travelling at a much higher rate of speed than is fixed in this paper, and in that connection I wish to say it is extremely dangerous and is jeopardizing the lives of the people who are using them. Another significant reason why passenger elevators should not travel at an unusually high rate of speed is that it is acknowledged by our most eminent physicians that it is decidedly pernicious to the health of persons subject to heart trouble to ride on a fast elevator, particularly in a sudden starting and stopping of the machine.

Inspector Callan of New Jersey read a paper on stopping machinery quickly.

Chief Connolly of New York spoke on the subject and asked questions in relation thereto.

Inspector Buxton of Massachusetts also discussed the subject.

Mr. Neu being present explained the working of Neu's Electric Safety Stop. He informed the convention that it could be attached to any part of the gear; also answered several questions put by the inspectors.

Chief Connolly of New York, Inspectors Buxton of Massachusetts and Ellis of Ohio continued the discussion. Chief Connolly gave an account of an accident which happened in a factory in New York State which might have been obviated if some proper means had been in use to have prevented it.

Inspector Sayre read the following paper on "Accidents in Factories: " —

## ACCIDENTS IN FACTORIES.

*With Suggested Measures to Alleviate their Results.*

[BY FRANCIS SAYRE, DEPUTY FACTORY INSPECTOR OF NEW JERSEY.]

"Accidents will happen in the best-regulated families." Even well-conducted factories and shops are not exceptions to this trite old rule.

Notwithstanding the safeguards the State throws around the machinery or tools used by its subjects, the number of accidents still remain very large. Belts slip and break, cogs catch the dress, fingers fail to keep out of the way of the descending punch, hot liquids spill or sputter, a thousand and one things happen in spite of all precautions, resulting in injury more or less serious, a loss of time, and suffering to the workman, extending from hours to weeks and months, sometimes years. This may mean to the employer a loss of valuable help, with more or less liability for wages; to the injured workman, loss of wages, and expense for surgical attendance during sickness. In grave or simple cases, no small aggregate if summed up for a district or State for a year or term of years. While the province of the State is to prevent mishaps, or in their happening to place the responsibility upon whom it may belong, we are forced to admit that a great number of injuries occur with great regularity in spite of us.

We might for a moment consider if something could not be done to as far as possible ameliorate the results. Sometimes a trifling injury becomes of serious import. A small sliver may produce a festering sore that is years in healing; the gouge of a rusty nail or tool, tetanus (or lock-jaw); a cut artery, death from loss of blood. In the writer's district a simple sliver was picked out by the workman with a corroded pin. Blood poisoning ensued, resulting in a loss of two fingers, and rendering the man practically a cripple for two years. A workman stepped on a rusty pointed punch, cutting slightly into his flesh. Nothing was thought of it, and he continued his work for the day. In three days' time he died from lock-jaw. In a case of severe burn at a factory, the injured had to wait some hours before any aid and final removal to the hospital could be secured. The result was much against the sufferer in the subsequent results. Prompt aid, even if not skilled surgical, would have been of great service. In our State there are but few hospitals, and some factories and works are located as remote as forty miles from a hospital, and nearly as many from surgical aid and supplies. These could be multiplied, and many cases cited where from causes such as lack of, or improper, surgical attendance serious results have followed not to be expected from the immediate extent of the injury.

Surgical science has made great advancement in these days, and while it has done much to save the injured workman from suffering and loss



of life and limb (in capital wounds, such as are liable to occur in factories, or from any machinery, good results are the rule where in former years they were the exception), yet good surgery, hospitals and modern treatment are not always to be had when wanted most, and in many so-called minor cases of injury are not sought, from wrong judgment, lack of means, or other reasons, so that suffering, loss of time, wages, and all accompaniments still go on.

As a rule, the more grave the injury the more untimely the hour in which it happens. After office hours for the surgeons, all away to a camp-meeting or convention, hospital closed for the summer, or repairs, something sure to cause delay. When a surgeon, doctor, or one passing under the name, is finally obtained, he arrives empty-handed, the shop does not afford so much as a clean rag, and while on a pinch he may improvise something for his purpose, delays too often result. As the injury goes down the scale in importance, it is likely to be considered as not amounting to much. Home-made or quack agents are applied, and in time it enlarges to greater proportions than capital cases. (Under good surgery and hospital treatment difficult amputations will heal in seven to fourteen days with perfect results; a trifling scratch or cut under bad treatment will run into months and years) In a word, lives and limbs are lost or rendered useless that should not even be imperilled. So much so is this the case that many railroads for their own protection against loss or damage provide surgical attendance and supplies at convenient points, so that delays or lack of means for proper treatment are avoided; and they require all injuries to be at once attended to by methods of their provision, not the patients' selection. Without entering too far into the domain of surgery, we can for our part perhaps apply a few common-sense rules that may be of service. Professor Eswach of Germany says that the fate of an injured man depends upon the person in whose hands he first falls.

In accidents the old rule "Delays are dangerous" well applies. "Run for a doctor" is on everybody's tongue, when a hand or foot is smashed; but it may take longer to find him than to read this paper, and if the reader survives the sufferer may not. If it is only a little one it is left alone, and see how it is to-morrow, or some of so-and-so's healing salve is applied; and to-morrow when it comes finds a festering sore or a useless limb. If we glance in one of our surgical friend's books we will find that the instant the flesh of a being is in any way injured a host of agents (millions that no man can number) are more active and alert than factory inspectors ever dream of being, go for that injury, and with unpronounceable names attached to them, they set up actions that produce poisonous changes, suppuration, inflammations, septicevna and other formidable conditions; that the dirt of the machinery and benches, on the workman's hands and clothing, and the well-laden air

of the factory, but multiply their forces and hasten the destructive work, so much so that figured in cash, seconds are dimes, minutes dollars, and hours are hundreds of dollars in the extent of damages accrued when medical agencies are applied; not only the enemy's work who struck the first blow, but the work of legions of strikers still at work must be met.

We need not further discuss the principles that underlie these facts. It is sufficient to state that in accidents such as are of very frequent occurrence under our observation we can aid in mitigating the results by seeing that the best possible methods are applied.

Some factories now either have at hand or within call one or more surgeons, and provide proper appliances, but they are a rarity. In their absence or neglect of their use means may and should be applied to secure recovery with the least amount of suffering and loss. Modern surgeons now treat wounds and injuries of every nature by what is termed "antiseptic method," or methods which prevent poisonous inflammations liable to occur when the flesh is cut, bruised or torn. Progress in the treatment of such injuries, as we observe, has made it possible for persons of ordinary intelligence to aid in their prompt and effective application; and, while lay treatment can never supplant the surgeon, it can do much to aid him. Neglect, entire or partial, has resulted in grave disaster; but misdirected attempts to do something, or direct wrong application, are so far apart as not worthy of consideration. Given a person fitted to have charge of a room or department, without previous knowledge or skill as to what to do in a small or great accident, and place in his hands proper appliances, and the chances are one thousand to one that he will do just what he ought to do. The emergency and opportunity will inspire him to a fitting course. In fact, for the purpose here outlined, proper cleansing of the injured part, and doing it up in a simple, ready-prepared dressing, is effectual and very important progress, and is so simply applied and will give such satisfactory results as to be worthy of serious consideration.

To carry out the suggestions here outlined, manufacturers of surgical dressings, at the writer's suggestion, after consulting surgeons have devised a case of appliances so arranged that any person with ordinary sense can use them with the most satisfactory results. In fact, the nature of the articles suggests their use at sight. For instance, bandages to arrest the flow of blood when an artery is cut, tablets to make a wash to cleanse a wound, sponges to wash it with, soft lints, cottons and gauzes to cover it with, dressing for burns or scalds, — bandages so cut and shaped that if a person picks them up they will at a glance see what they are for. The case includes pins, fastenings, scissors, bandages, dressings and appliances all properly put up to preserve them in good condition, and have them always at hand just when wanted; and, as has been pointed out, if surgical assistance is called there is at hand without

delay just what is needed for the first dressing. Accompanying the case are explicit and plain directions for the use of the articles. It is designed that at least one such case or box shall be placed in every factory, under charge of a superintendent, foreman or other suitable person, where its use cannot fail to result in good.

Deputy Franey of New York was added to the committee on resolutions.

Inspector Sayre of New Jersey exhibited to the convention a case containing appliances to be used when accidents occur in factories and workshops. The case exhibited was the invention of Johnson & Johnson, 92 William Street, New York City.

Chief McDonald of Ohio, having been called to the chair, invited the ladies present to explain further the utility of women as factory inspectors.

Inspector Mrs. Alex. Bremer of New York responded, and said that women were needed as factory inspectors so long as women and children were employed in such places. She told of complaints that had been made to her which women would not like to make to a man. She cited a case which happened in a factory in New York City.

Chief Connolly thought that where such matters occurred that it should be reported direct to the head of the department and not retained for private accommodation.

President Wade said that he thought that Chief Connolly was taking too broad a view of the matter. He was of the opinion that women inspectors could find out many violations of factory laws for the protection of their sex where it was impossible for male inspectors to ferret them out.

Inspector Halstrick of Massachusetts moved, that in view of the contemplated visit to Coney Island, to which place the inspectors had been invited, that the convention adjourn at 12.30 P.M., to meet at 9.30 A.M. Saturday.

ISAAC S. MULLEN,  
*Secretary.*

NEW YORK, Aug. 30, 1890.

Convention opened at 9.30 A.M.

President Wade in the chair.

On motion of Inspector Weinthal of New Jersey the reading of the minutes of last session was dispensed with.

Deputy Franey of New York offered the following resolution : —

*Resolved*, That the name of this association shall be known as the International Association of Factory Inspectors of North America.

Deputy McKay read the following paper : —

THE EFFECT UPON THE HEALTH, MORALS AND MENTALITY  
OF WORKING PEOPLE EMPLOYED IN OVER-  
CROWDED WORKROOMS.

The question to which I call your attention especially in this paper, namely, the effects of overcrowding in workshops upon the physical, mental and moral health of working people, is of course only a part of the much larger question of the general conditions of labor, so many aspects of which have come before this convention; and a moment's consideration will show that a *thorough* treatment of my subject would be impossible in the time at my disposal and still remaining for the work of this session, apart from the very complicated and subtle nature of the problems involved. These problems involve consideration of the play of the merely physical forces *in* the body and brain of a man, or woman, or child, and their relation to the physical forces around them; the action and reaction of these upon human passions and instincts; the dependence of the human *imagination* upon these merely physical conditions, and the action of imagination and reflection on the rest of our mental faculties; the interaction of all these factors upon each other and upon the general animality, morality and mentality of the toiling worker in the "sweater's" den. This is a labor which you will not blame me for shrinking from undertaking before you, and yet that method of treatment is necessary to the complete way of looking at this question. I can only direct your minds to it, suggest some inquiries, and refer to sources for further study, while picking out for special emphasis a point here and there on which many of the gentlemen present may have practical experience and special aptitude for the better treatment of than I make any pretensions to possess.

The basis, both as to cause and effect, of the problem of overcrowded workshops lies in immigration, competition and massing of population in cities out of all due proportion to the general increase of the population throughout the country.

In 1790 one-thirtieth of our population lived in cities of 8,000 persons. In 1880 the proportion had become one-fourth. From 1790 to 1880 the general population increased twelve-fold, while the population of the cities increased eighty-six-fold. In 1800 there were only six cities of over 6,000 inhabitants; in 1880 there were 286

Coming down to details, there are whole blocks on the east side of New York City more densely crowded than the same number of houses in any city in Europe. I only say in passing that these and all such facts are involved in my subject indirectly, but belong to that order of facts which chiefly come into notice, and must be reckoned with under the larger question of "Remedies for Overcrowding," which of course is outside my present limits.

But much discussion and legislation have marked the last few years on the matter of the sanitary conditions of the poor in large cities, so far as their homes are concerned; and what I want to suggest is the absolute necessity of rigorous dealing with the same evil conditions in the lower order of so-called workshops and factories. Overcrowding in the homes of the poor and the labor populations of our cities has had the full force of public inquiry and scientific remedies applied to it; and in this matter of overcrowded workshops and the evil effects upon the workers physically, morally and mentally, we are entitled to assume all scientific demands of sound health which are accepted as demonstrated in the case of the tenement-house problem.

The condition that to keep a room pure "from two to three thousand feet of air should be allowed to pass through a chamber *every hour* for *each person* in it," is *more* necessary to be observed in a workshop even than in a bedroom. "That increased mortality goes hand in hand with density of population" is an admitted general law; and the reason that it is so holds good as a matter of *degree* and *tendency* in the case of density of human beings in the vitiated atmosphere of workshops. If "one foot of carbonic acid to one thousand of pure air vitiates the atmosphere of a dwelling-house," it stands doubly true of a workshop. And if, according to Dalton, Foster and Wilson, the well-known physiologists, each person "should be furnished with 20,000 litres of fresh air every hour, in order to make the air fairly wholesome," because in "one hour, drawing seventeen breaths a minute, he leads 2,000 litres of air with one per cent. of carbon dioxide," surely that is more significantly true in an overcrowded workshop than in an ordinary dwelling.

The whole tendency of the present scientific inquiries regarding the *germ theory* of disease raises this matter of "overcrowding" in work-

shops into a new and vital matter of importance. The foul air in a workshop, says a high authority, "often begins a lung disease, spreads one introduced from without, and results always in generally impaired health." There are at present important experiments going on which point to the conclusion that the toilers' great enemy, consumption, will be demonstrated to be infectious beyond doubt; and in this, it seems to me, lies a profound reason for more attention being given to the problem before me in this paper. Dr. A. Vogt, the great hygienist of Switzerland, quotes the French authority, Dr. Dujardin Beaumetz, as saying that "the most murderous of all epidemic diseases, phthisis, on account of its contagious character, through inoculation is classed by medical men among the infectious diseases. Many statistical researches have shown this contagion to be caused mainly in the weakening of the body by living for any length of time in close or vitiated air." According to this physician, anything which reduces the vital energies of man, even mental and physical weariness, as well as bad air containing noxious gases and impurities common in crowded workshops, are proven to induce relapsing typhus, spotted typhus and soft cancer of the lungs. A most peculiar confirmation of my position is found in a recent decision of the Swiss factory inspector, Dr. Schuler, in answer to a petition of the Swiss Typographical Union to the Swiss Federal Council, in which he says that the frequency of pulmonary disease among printers is not a necessary consequence of their special calling, but was to be attributed to defective hygienic arrangement, which with proper sanitary rules may be prevented, such as good ventilation, a proper control of gas, healthy eating-rooms and a rational mode of living. This is of course a special case; but the general run of occupations and conditions of work are very similar.

Let me repeat now what I have briefly hinted, that the physical evils to the working-people of overcrowding in workshops, are practically of the very same nature as those which universal sanitary opinion has laid at the door of the crowded and filthy tenement-house system, of which the masses of laboring people are (seemingly) condemned to be the victims in our large cities. These evils, however, are intensified by several facts which are largely overlooked in social studies of this kind. Our enormous increase of population by immigration, as well as emigration, adds daily to the swarms of helpless and ignorant cheap labor. This makes it very easy and profitable to invade all forms of industry by a grade of workmanship unheard of until these latter days. This cheap labor not only works for but creates an enormous and degraded market of consumers which did not exist in our American cities till within a very few years ago. Whole districts of the city of New York are thus being rapidly transformed into small "factory" centres of the most filthy and wretched character. In these districts what formerly

were crowded *dwelling-houses*, have become crammed workshops, in which swarms of foreign emigrants are heaped almost upon one another, and buried out of sight in masses of materials which smell as powerfully and poisonously as the wretched toilers themselves. If these so-called workshops or factories accommodated double the number of inmates allowed by sanitary science when they did duty as dwelling-houses, and that is a very moderate estimate, indeed, they now mass within their slender and dirt-grimed walls four and five times the number of human beings who should be permitted to occupy such small spaces in crowded neighborhoods.

The physical conditions, therefore, under which the lowest and largest number of toiling people labor is simply a magnified and intensified copy of those whose horrors and difficulties all over the civilized world are racking the brains of philanthropists and moralists, by reason of the social and political dangers and problems which lie deep down in the roots of the question, "How shall we improve the housing of the workers and the poor?"

But in the problem of the overcrowded workshops there enters the additional evil of *material* substances in fine, subtle, microscopical forms floating in the air which is already poisoned by the criminal excess of those inevitable exhalations necessary to every human or breathing animal. These material substances of course vary with the occupation and materials handled, and many of them attack the lungs, lodging in them as foreign elements, while others make special attacks upon the organs, such as the eyes and mucous membrane of the mouth, and through the sensory nerves sometimes paralyze, or tend in various degrees to paralyze, vital nerve-centres in the human system, controlling and destroying those very physical organs and activities upon which the unfortunate toiler depends for his very existence.

These physical evils, many of which are beyond doubt inevitable, and bound up in the very conditions under which the special industries must be prosecuted, if prosecuted at all, are aggravated by those other *pre-rentable* evils of poisonous gases from putrefying, though invisible, animal matter floating in the air, and largely made up of exudations from overheated and unclean human bodies, which, added to the heavy-laden atmosphere already poisoned by the foul breaths of ten or a dozen sickly and unhealthy persons, occupying a room or two which would be overcrowded from a scientific point of view if occupied by more than two or three persons of sound health and aided by proper ventilation, make up altogether a physical environment, laden with such foulness, disease and death as is simply a disgrace to God and man.

Let us remember for a moment that labor-saving machinery, driving upon the workers from one direction, by displacing over one-fourth of the hands, and immigration, reckless, starving, and badly adapted to

American conditions, driving in from the least civilized sections of Europe, not only overcrowds the labor market and degrades it, but also crowds the "housing" market, raises the rents, degrades the dwellings, and poisons the helpless worker where he seeks for rest and sleep in vain.

We must add, therefore, to the ten and twelve hours of vicious atmospheric slow poisoning in the work-shop the eight or nine hours of so-called "rest" and sleep in the almost equally fouled atmosphere of the tenement-house. And if we follow the cheap-labor victim to the natural recreation which such physical conditions drive men to, we will find that it only completes the vicious circle of unhealthy conditions, out of which the imagination almost fails to see any true escape.

As already hinted, these evil physical conditions have aroused the sympathy and active efforts of scientific statesmen as well as moralists all over the world, and vast plans are in contemplation for the future, while some very striking experiments are now going on. The political and social progress and agitation in the city of London in the last year or so gives great promise that the triumphs of sanitary science which have marked the last quarter of a century as peculiarly its own, will now be made the basis of wide-spread application to the every-day living and working conditions of the "common people" in that municipal monster of 5,000,000 as an example for other cities.

Mr. Albert Shaw has recently published, under the auspices of the Johns Hopkins University, a study of the wonderful power and success attained in the Old World, notably in the city of Glasgow, by the municipality vigorously straining its whole authority and wealth in such sanitary reforms. American universities and colleges have now made this a settled matter of special investigation and treatment by their best students, and much valuable information is now being embodied in books, magazines and newspapers.

These examinations of the problem are largely concerned with the moral and intellectual dangers involved. Of course these are fragmentary discussions, though very valuable in their way. But for systematic study, perhaps the most exhaustive study of the factory system — which includes the most vital causes which in their *excessive* operation give us the phenomena known in our populous cities as "overcrowding" — is to be found in Mr. Carroll D. Wright's special report on the factory system of the United States, in the second volume of the tenth census of the United States. Here Mr. Wright has gathered a mass of statistics and information which can scarcely be obtained elsewhere, and he has grouped his material and handled the subject with a philosophic grasp which those of us who are faithful to our opportunities and duties, and who have not had the good fortune to consult so fully original sources of information, must admit reflects profound credit on the profession of



which he is an ornament. The ground covered by Mr. Wright of course is open to much controversy, but since 1882 very little has been published which could add to the value of this report as a mere source of reference both for foreign and American data on the problems of the modern industrial system. I refer to this work, however, so emphatically for the purpose of guarding against a misconception which might probably result from confusing my attack upon "overcrowded" work-shops with a very common and popular attack on the modern factory system itself. Much of the strong language one is compelled to use against the evils of overcrowding is often applied to the whole modern and inevitable system of subdividing and organizing of labor, as opposed to the old "hand-work" and "small-shop" system which the modern factory system has supplanted by the use of machinery and natural power. But the cases are quite different. Mr. Wright shows that many of the evils of the factory system do not belong to it of necessity, and defends the effects of factory life under the best and increasingly improving conditions in this country, as lifting up the lowest and worst class of the poor to a better condition than they could otherwise fill, and driving up the skilled and effective workers to higher forms of labor and management. Factory life and its effects on women, children, the family, habits, health, temperance, prostitution and thrift, and the charge of "intellectual degeneracy," are questions which he handles with great ingenuity, and with great success so far as concerns the *best possible conditions* which may be enforced by *wise and humane* direction under the factory system. But I must emphasize the fact that the overcrowding in work-shops of which I complain represents the very worst evils of the old small-shop system and the present subdivision and detailed organization of cheap labor. Nothing which Mr. Wright has written especially on the moral and mental effects of massing labor together on the system of large production can invalidate my objections to the evils of overcrowding which have been so recently exposed in the city of New York during the late cloak-makers' strike, and a few years ago during the agitation for the passage of a tenement-house bill in this State, recommended by Governor Hill, and finally signed by him. Some years previously the union cigar-makers' agitation against tenement-house cigar manufacturing aroused the public indignation; and only the other day the English government issued a "blue-book," the report of a royal commission which investigated the "sweating system" of London, in which this body of aristocratic statesmen, appointed by the House of Lords, astonished the world by practically saying that there was no escape from this social problem except by State socialism or self help and organization of the victims themselves.

There are splendid factories in which every provision for health is provided in this country, and they are increasing; there is also, however,

growing up in many of our large cities in the most crowded localities, a foul system of pest-holes, which necessarily violate every known condition of moral, physical and intellectual health, and here it is that the worst kind of overcrowding may be seen.

Much valuable data in connection with this subject may be found in the recent and unique work of Mr. Chas. Booth on "Labor and Life of the People," vol. 1, East London, and in "Modern Cities," by Mr. Samuel Lane Loomis, originally published in "The Andover Review." "Practicable Socialism," by Rev. S. A. Barnett, the real father of Foyntbee Hall and the university settlement movement in England, is very valuable.

From the very nature of the question before us, you will see at once that the effects of overcrowding which are purely physical cannot be distinctly separated from those which are mental and moral. The facts are mixed and inter-related to such a degree that any such separate treatment would be impossible, except in the most general way. Besides, the modern study of psychological phenomena is thoroughly based on [the physiological facts out of which mental and moral conditions are held by scientists to develop, and by which moral and mental conditions, both good and bad, are largely influenced. When we have seen the physical effects of overcrowding to be evil and degrading, it goes without saying, by modern scientific logic, that the moral and intellectual effects must be infinitely worse. The whole modern work of churches and philanthropists, even, in their most spiritual labors, take the view very largely, that the physical condition of the individual and his physical and material environment must be considered along with the moral forces of will and conscience which they attempt to arouse. That the brain is the organ of the mind, and that a sound mind requires a sound body, are fundamental truths, which were never more thoroughly believed than now.

I may be told, and there is much truth in the warning, that it is easy to be led away by mere empty sentiment on a matter of this kind, and one might be easily suspected of special pleading and exaggeration. Where exact science is so much involved, also expert authority may fairly be demanded. Let me, therefore, be excused for quoting at some length a distinguished English statesman of the most practical kind, one who has been a sanitarian reformer for over forty years, and a scientific authority of the highest character; whose university career gave him a world-wide fame as a man of culture and learning, and whose success as a practical man of affairs in many departments, as a member of Parliament, and a tireless teacher of "public opinion," stamps his judgment on matters of this kind with the highest value. The Right Hon. Sir Lyon Playfair, in his recent collection of essays, "Subjects of Social Welfare," embracing seventeen papers on "Public Health," "Industrial

Wealth" and "National Education," speaking of ventilation, says that "in modern hygiene nothing is more conclusively established than the fact that vitiated atmospheres in our dwellings and their surroundings are the most fruitful of all sources of disease." Now, my contention is that the vitiated atmospheres of overcrowded work-shops are infinitely worse, and must be added to the physical evils which the same work-people suffer in their dwellings. He points out how the purifying effects of fresh air which the out-door life of the wretched Crofters in the Scottish Highlands are compelled to "enjoy" counteracts the effects of the "filth polluting" dwellings in which they sleep, and keeps the death-rate very small, compared to the closely packed population of Glasgow. "Light and air are as necessary to the dwellers in cities as they are to the trees of a forest," he says, and adds that Glasgow is worse than England, where brick and mortar is more general than sandstone and limestone, which he says are "natural sources of ventilation beyond our control," being porous, "admitting the interchange of vitiated and pure air." If Dr. Playfair knew anything of New York, he would discover that these natural sources of ventilation have not been "beyond the control" of ignorance and filth in some of our overcrowded dwellings and workshops. Going on to show how, in the struggle for existence in a forest and in a crowded city or dwelling, the stronger push aside the weaker, and monopolize the conditions of life to themselves, he adds: "But in an overcrowded city, grim Death with his scythe exercises little discrimination, and cuts down all those who come within its fell swoop. I have only alluded to the physical evils of overcrowding, but the moral evils are greater still. Although there is an excessive rate of mortality in overcrowded districts, there is no lessening of the population by such unhealthy agencies. A crowded and unhealthy district, with its inevitable consequences of low morals and low intelligence, where the condition of human beings is scarcely above that of animals, where appetite and instinct occupy the place of higher feelings, where the barest means of support encourage the most improvident and early marriages, is not the place where we shall find a diminishing or even stationary population. For the early unions in such places are followed by early offspring; and, although more than half that offspring may be swept away by disease during infancy, yet nearly a third of them will grow up, in spite of all the surrounding evils, to follow in the footsteps of their parents, and in their turn continue a race ignorant, miserable and immoral as themselves."

Observe how closely this expert authority places the physical, mental and moral effects of overcrowding. He says the "craving for and excessive use of alcoholic stimulants arises from those depressing physical causes of disease which abound in cities; dirt and drunkenness are often cause and effect. Indeed, the physical and moral causes of

disease are nearly as intimately associated as filth is with the entozoa of which I have already spoken. Shocking and repulsive as some of these causes are, especially in relation to infantile mortality, it is no use for us, like ostriches, to bury our heads in the sand and refuse to see them, for it is the relentless King Death who is our pursuer."

Dr. Playfair insists, like all modern sanitarians, that, while death sweeps off the very weakest, still these causes of disease stamp themselves in the organisms of the survivors, who carry them through heredity into succeeding generations. "The survivors," he says, "carry with them the seeds with which they have been impregnated during an unhealthy upbringing:

"A man, perhaps the moment of his breath,  
Receives the lurking principle of death;  
The young disease, which must subdue at length,  
Grows with his growth, and strengthens with his strength."

Dr. Playfair touches very sarcastically on the spasmodic efforts of aristocratic charitable people to ward off the social and political dangers which they sometimes fear lurk in neglected vice and ignorance: "Sometimes we look upon a human infant as a dangerous animal that may turn round and bite us when it grows up, and so we give some attention to the children of the dangerous classes, and try to tame them by improving their dens and educating them to a limited degree. But the children of the productive classes receive no public care, and they grow up stunted in frame and of low productive value, because the State does not provide for conditions of healthy human development in crowded populations. If babies were pigs, or oxen, or sheep, the vice-president of the council would be daily questioned in the House of Commons if any unusual mortality came among them; but, being only human infants, no one thinks of their welfare. Beasts with a selling value are taken more care of than men in free countries. . . . If we succeed in getting the dwellings of our working classes made as healthy as the cell of the felon, — and surely that is not an unattainable luxury, — eight years would be added to the productive ability of our working population."

Please observe that this is not the language of a mere "labor agitator," but the sober published judgment of a practical scientist. And remember that what is true of these social problems, in the great centres of population in one country has now come to be acknowledged equally true in all progressive commercial cities. We in America, and especially in New York and other rapidly growing cities, have all the difficulties which such a city as London has, with many greater difficulties of our own which London has never dreamed of. And, so long as England leads us in some aspects of industrial legislation, her example must be

good for purposes of warning, at least. Her experience counts for very much, though not for everything.

It is not my purpose within the limits of this paper to deal with the causes and cures as well as the effects of overcrowding; but this last point of Dr. Playfair, that, if the physical condition of the English laborer could be raised to that of an English felon in an English prison, the productive value, in hard cash, of her working population would be raised equal to eight years' labor, should not be allowed to pass without noticing how thoroughly practical and unsentimental this problem is on its lowest side, and how much worth the earnest consideration of the purely practical man is this social question of fresh air and good light and personal freedom from dirt in the home,—how much more powerful when we include the shop.

The number of preventable cases of sickness in England is given as 4,200,000, representing just so much productive power lost. It is the difficulty of getting not only the tax-paying citizen to see this, but the employer of labor, and, let us add, with grief and disgust, the laborers themselves. Indeed, without their active sympathy and intelligent realization of such problems, nothing much can be done. The victim must be saved from himself by forcing him to see how much nearer to him the benefits of sanitary legislation are than he thinks,—if he ever thinks in such an atmosphere. In Glasgow it was found that working-people furnished with new, cheap and healthy houses destroyed the whole benefit and object by taking in extra lodgers to fill up the extra sanitary space provided for health, so as to pay the rent and make a little extra money.

The significance and the social dangers involved in the problem of the physical effects of overcrowding are greatly enhanced also by the additional fact not only that it is worth while from a financial point of view to solve it, but that we have good reason to believe that it can be done. The death-rate of the English army in India used to be sixty-seven men in every one thousand, which has now been reduced by purely sanitary measures to twenty men in the one thousand; while the deaths of civilians in Bombay and Calcutta, under tropical conditions almost, have been reduced to that of Manchester, Liverpool and Glasgow. The powerful influence of regulations of health based on modern science was first remarkably forced upon public opinion in England by the contrast of the deaths in the French and English camps during the Crimean war. The English government was forced to make a special sanitary investigation, the result being that she only lost twelve men per one thousand, while the French, with no sanitary commission, lost one hundred and fifty-five per one thousand. But time will not permit the vast array of evidence which might be laid before you, showing that, ugly and hopeless as the problem of overcrowding seems at first to be,

sanitary science can master it. Dr. Benjamin Ward Richardson, the apostle of sanitary reform in England, in his work, 'The Ministry of Health,' speaking of the causes which are truly destructive of physical and mental vitality, both national and individual, says: "The last great influence against vitality is excessive balance of muscular or physical against pure and refined mental work. The lost vitality lies in all countries with the slaving masses of the people, in whom the nervous organism on which so much depends for life is undeveloped, or developed only to the mere extent of its automatic life. Can we wonder at this? Consider the condition of the industrial unit, and extend the unit to the mass, to the five millions of the industrial workers and to those who depend upon them. The necessity of having to work in masses in the same building at the same monotonous ever-repeating labor in which the muscles are moving with automatic regularity, and the brain is left unemployed except to brood over real or imaginary injuries; these conditions affect life to the core, and exert a fitting effect on the vital value of the working class. The agricultural laborer may work hard, may fare badly, may be housed shamefully, but he has many advantages. He is engaged out of doors in the fresh air; he has all the beauties of external nature to delight and refresh him. His work is varied. There is the spring-tide season, with its sheep washing and shearing; the summer, with its hay-time; the autumn, with its harvest; the other months of plowing and sowing, a constant roundelay of work, with varied change for the mind as well as body. The artisan has no such pleasures of industry. He passes day by day, month by month, year by year, through the same monotonous labor, until at last his mind recognizes but one scene, his hands fall but to one automatic routine. To the end of his career he sees no change, nor chance of being made independent by his skill and his industry. He therefore is naturally apt to become fretful, anxious, irritable, the victim of smoldering passions, which wear out his heart and lessen his nervous resistance to the many external shocks to which he is daily subjected. Moreover, the limitations of his means leads to limitation in the necessary comforts of his home. He who is in these straits is rather to be pitied than blamed, if, in false measure of the deed, he seeks, ignorantly, still more sorrow in alcoholic indulgence. When we add together these difficulties of existence, the struggle against penury and actual want, the confined dwelling-room, the badly ventilated, overstocked bed-room, the indifferent couch, the limited sleep, the ever-returning toil, and the rarity of wholesome relaxation either of mind or body; when, I say, we contemplate these conditions, we have before us evidence of vital strain which practically is resisted longer than we could at first sight imagine to be compatible with human endurance."

Now, if we add to this vivid picture of the weary life of thousands of

our overworked and worst-paid fellow-toilers, the picture of the overcrowded pest-holes of the cheap-labor system, and the foul physical conditions which these toilers breathe for from ten to fourteen hours per day, we can see the force of the argument that, if such evil moral and intellectual tendencies result from the average and by no means lowest possible type of the workingmen's conditions, the weight of the downward pull of the worst conditions which prevail in our new order of sub-cellar, basement and back bed-room "factories" on the east side of this city, reeking with foul smells, and stuffed with bursting with unclean and unhealthy human bodies, must be degrading beyond all description to the germs of moral and mental health which we must assume to be struggling for life even in the most hopeless specimens of humanity.

The most direct effects upon morals which space will allow me to deal with are bound up in the fact that in the overcrowded workshop of all kinds male and female workers are employed together. The second fact which is involved is that the number of women workers increases all the time, and the mixing of sexes — questionable under any conditions so far as morals are concerned, under even favorable circumstances — is becoming worse every day in the overcrowded and unhealthy shops. In the third place, young girls are increasingly employed among older persons of their own sex, and young boys and youths are mixed and crowded at work with men of advanced years. In a crowded shop there is a vast deal of conversation, careless, and, to say the least, very suggestive, prompting premature curiosity in young minds, and turning their attention to matters of sexual significance which becomes poison in their young lives ever after, even if not distinctly immoral in its nature, or intended to do harm. The sexual precocity of the young in modern times has aroused the attention of moralists for many years, and the conditions of crowded workshop life for both sexes at certain critical periods of physical development could not be worse if created by a fiend for the purpose of poisoning the moral and intellectual life of the young at its source.

This is a delicate question, which I cannot discuss fully in the present assembly, but will refer my hearers to Dr. William Acton's work on the "Functions and Disorders of the Reproductive Organs," in which the physical conditions of moral health for the growing of both sexes is plainly treated; and also Dr. Carpenter's "Mental Physiology," chapters 1, 2, 3, and those on Ideation, Emotion, Habit, Will, Imagination, Unconscious Cerebration; also his "Human Physiology," pages 631 and 826, which deals thoroughly with the principles of science and sexual morality. I may only add that any one can understand how much the exposure of the person by both sexes, inevitable in overheated, overcrowded workshops in summer, must lead to blunting the sense of mod-

esty into regarding strict ideas and habits as impossible, if it does not lead to worse. Excessive familiarity between the sexes leading to injurious moral results is not more true of overcrowded workshops than of any other place in which both sexes are working together. The fact, however, that the animal instincts are stimulated and moral senses blunted to a degree very much underestimated will appear on a moment's reflection. The other moral effects involved in this problem of overcrowding in workshops has been so ably indicated in the expert authorities I have quoted, as well as the specially evil effects on the mentality, — that is, the general tone of mind, the drift of the worker's thinking, his hopefulness and calmness, and vital power of thought, which are utterly destroyed, in most cases reacting on his physical health very powerfully, — that I shall content myself by concluding with the words of the distinguished American authority on this special subject, Dr. George M. Beard, who says, comparing the longevity of muscle and brain workers : "Almost all muscle workers are born to live and die poor; to live on the slippery path that lies between extreme poverty on one side and the gulf of starvation on the other; to take continual thought of to-morrow, without any good result of such thought; to feel each anxious hour that the dreary treadmill by which we secure the means of sustenance for a hungry household may without warning be closed by any number of forces over which one has no control; to double and triple all the horrors of want and pain by anticipation and rumination. Such is the life of the muscle-working classes of modern civilized society; and when we add to this the cankering annoyance to the workman that arises from the envying of the more fortunate brain-worker, who lives in ease before his eyes, we marvel not that he dies young, but rather that he lives at all."

These words are too true of vast masses of working people; and when we reflect that they are true not of the very worst, but even of most of the average, and then add the extra filthy conditions of the overcrowded workshop, the physical, moral and mental injury to the present generation of victims and their offspring, and society, becomes very vivid, and we feel the importance of the question, as well as the very inadequate treatment we have been compelled to give to it.

Inspectors White and Coon of Massachusetts made some remarks on the resolution offered by Deputy Franey, and thought that the words "Public Buildings" should be added.

Deputy Franey of New York, in support of his resolution, said that at present there was only one State whose inspectors had public buildings under their supervision, and



that was Massachusetts, and he thought that Factories and Workshops would meet all requirements.

The resolution was put and unanimously adopted.

Inspector Ellis of Ohio moved that the time and place of holding the next convention be left to the incoming officers.

Inspector Weinthal of New Jersey, was opposed to the officers having so much power.

Inspector White of New Jersey moved that the motion lie over until all the chiefs were present.

Inspector Barber of the Province of Toronto, Canada, read the following paper on the factory laws of that Province : —

The Ontario factories act, in force in the province in which I live, became law in the year 1884; but the inspectors, of whom there are three, were not appointed till late in June, 1887. By the definition of a factory (including workshops) no place of employment comes within the jurisdiction of the act unless there are at least six persons employed; originally the number was twenty-one persons.

As to the employment of children, no girl under fourteen years of age, and no boy under twelve years, may be employed. Boys between twelve and fourteen years must produce a certificate of age from a parent or guardian. This is to prove that such boy is actually of the alleged age. No certificate of age is required for girls, but the inspectors occasionally demand one, when they are of the opinion a girl is not fourteen years old. We have also the power to get the opinion of a physician as to a child's age, and such opinion over-rides the statement of the certificate, if at variance.

The hours of work for boys under fourteen years and females of any age is restricted to sixty hours a week and ten a day; but the day's work may exceed ten hours, on condition that the number of hours so exceeded be taken off Saturday's working hours.

The act requires one hour to be allowed at noon for meals; but it has been that, in many factories, the workers prefer to shorten the noon spell and take the time so gained off Saturday's working hours. So long as this arrangement is satisfactory to all concerned, the inspector does not interfere. Very few factories, outside of textile, work their employees full sixty hours, some as low as forty-four hours.

The Ontario act provides for working overtime to a very limited extent in certain cases, such as stoppage of machinery, through accident to machinery or motive power, or other causes beyond the control of the

owner or employee, or exigencies of trade at certain seasons. Then on application the inspectors may grant an overtime permit which is limited by statute to thirty-six nights in twelve months' work; to cease at nine o'clock, and not more than five nights in one week. This permit does necessitate continuous overtime work until the thirty-six nights are exhausted, but as the employer thinks best in his own interest,—one night or more in a week or month, according to his exigencies.

In a few instances in our province the overtime granted would not begin to meet the wants of the employers; then they engage an extra set of females and children, and operate the factory or certain departments day and night, taking care not to exceed sixty hours a week. The act in no way restricts the working hours of males fourteen years old and upward; nor does it fix the time, day or night, for beginning or ceasing work. So long as sixty hours a week are not exceeded by females and children, they may work by day or by night, as the case may be. The chief industries in Ontario that utilize the overtime clauses of the act are confectionery, gloves, hosiery, knitted goods, shirts and collars, ladies, underwear, ivory buttons, fruit-canning factories, flannels and blankets.

The confectionery trade is pressed with orders in November and December for the Christmas holiday trade. Candies deteriorate with age, and must be fresh as possible; therefore manufacturers cannot through the summer make stock ahead, thus a heavy portion of their work needs be done in a few weeks. The overtime permits these industries to get over the emergency without loss to business. As to clothing and textile fabrics, it is not that trade is so extra brisk that the overtime permit is used, but rather the reverse, for the wholesale buyers are cautious and give very small orders at the beginning of the season; trade naturally increases as the period for consumption of these goods approaches; prompt delivery is urged, and overtime is worked to prevent orders from being cancelled through slow delivery.

Fruit and vegetable-canning factories frequently, when the hour for ceasing work in the evening approaches, have a quantity of fruit in process, but not advanced to that stage where it may be safely kept till next day without injury. So our law has given considerable latitude to these industries, particularly in view of the fact that they are in operation only about four months in the year. For this industry there is no restriction as to the age of children employed, so long as their work is previous to the cooking process. After that process the general law applies in any case; sixty hours are a week's work for all males and females under fourteen years old, except under the overtime permit, when twelve and one-half hours extra may be worked in five nights, if it can be done by nine o'clock. Females eighteen years old and upward may work later.

The clauses in the act pertaining to the health and safety of employees are similar to those of the British act, and to those of such of our own

States as have adopted factory legislation, though there is one very important omission, I suppose an oversight in drafting the act. The act is very strict about guarding machinery, and clearly defines "mill gearing" as distinct from machinery, as follows: "Mill gearing comprehends every shaft, whether upright, oblique or horizontal, and every wheel, drum or pulley, by the motion of which the first moving power is communicated to any machine appertaining to a manufacturing process." We all know the danger there is from such shafting if it is so placed that workers are liable to come in frequent contact with it. The omission in the Ontario act is that there is no provision for guarding such shafting and pulleys as in mill gearing; but fortunately, in my experience as inspector, when I have pointed out the dangers of such exposed or low shafting to employers, precautions were at once taken to prevent accidents, even though not compulsory. The law will be amended in this respect.

I have gone over a few of the main points of the Ontario factories act, thinking perhaps the subject may be of interest to some of the members of this association present. I very much regret that I did not have time to prepare a few remarks on the subjects allotted to me, though my short experience as inspector, a little over three years, would not be sufficient for me to do the subjects any kind of justice, so important do I consider them. I am glad to notice a new and interesting feature in your association, namely, the presence of female factory inspectors; and I must confess that knowing some of them were to be present turned the scale in favor of my coming. The appointment of female inspectors has been suggested to the Ontario cabinet by the labor leaders so far without effect, as by the factory act there is no duty to be done by the inspectors that cannot be done by the present inspectors without any indelicacy whatever; but, knowing that the factory laws of the different States vary in some respects from the Ontario act, there may be good reasons why in some of the States there should be female inspectors. It is some time since I have read upon the subject, but I remember that the factory or labor laws comprise more than factories and workshops. They supervise shop girls in stores, street railroad companies, egress from public halls and other public places, and I think in one State the education of the young, weekly payment of wages by all employers of labor, which our friends Mr. Conolly or Mr. Franey of New York can tell us all about, and other matters. In my province each of these matters, if dealt with at all, is legislated for specially, and does not come under any other act. So, with the system in vogue in some of your States, I can easily see that the female inspector may be of great service. I am here to observe and learn, and have listened with interest to all that can be said of and by them.

In concluding, I thank the president and members of your association

for your kind invitation to the factory inspectors of Ontario to be present at this convention. This is the third convention to which I have been invited, the first occasion coming through the Hon Henry Doon, then chief factory inspector for Ohio, through whose exertions, I believe mainly sprung your association, which is now, and in future will be, a great benefit to its members, and through them, by the interchange of ideas, to the toilers in factories and workshops ; and through the publicity of your proceedings, I have no doubt that legislation for the health and safety of workers and the people in general will spread, till before long every State in the Union will adopt measures to that end.

In connection with the reading of the above paper, an abstract of the laws of the Province was shown the members of the convention.

The paper was referred to the committee on resolutions.

Deputy Franey of New York offered the following resolution : —

*Resolved*, That we recommend the examination by competent boards of persons having charge of steam-boilers, and engineers to test their qualifications.

The resolution was adopted.

Inspector McKay moved that the secretary tender the thanks of the convention to the officers of the Board of Charities for their invitation to visit Randall's Island.

The Secretary sent the following telegram : " Invitation received ; accept thanks of convention ; lack of time prevents the members from attending."

On motion, went into election of officers.

Inspector D'Arcy of New Jersey moved that the present officers be re-elected by acclamation.

Inspector Fell of New Jersey said that the success of the association was certainly due to the efficiency of the present officers. He also remarked that if it were not for the confidence of the people of Massachusetts in their chief inspector it was very doubtful if factory legislation would be as far advanced as now.

President Wade of Massachusetts made a speech of thanks, but said that he did not desire a re-election.

It was moved and carried that the member offering the motion to elect the officers by acclamation be requested to cast the ballot for their re-election. The ballot was so cast, and the following were elected: President, Rufus R. Wade of Massachusetts; First Vice-President, John Franey of New York; Second Vice-President, Wm. Z. McDonald of Ohio; Secretary-Treasurer, Isaac S. Mullen of Massachusetts; Assistant Secretary, Wm. S. Simmons of Connecticut.

Chief Connolly of New York moved that the State of Pennsylvania be represented by the choice of one of its female inspectors as one of the vice-presidents. On motion, Chief Connolly cast a ballot for Inspector Mrs. McEnergy.

Inspector Barker of the Province of Toronto, Canada, was elected on the board to represent Canada.

President Wade and the officers elected thanked the convention for the honor conferred.

Chief McDonald of Ohio moved that the assessment of each department be ten dollars, to defray the necessary expenses of the secretary. Motion carried.

The various departments signified their intention to take copies of the proceedings as follows: New York, 200; Massachusetts, 200; New Jersey, 100; Ohio, 200; Pennsylvania, 50; Connecticut, 50; Maine, 50; Province of Ontario, 50; Province of Ottawa, 25.

Chief McDonald invited the convention to meet at Columbus, Ohio, and, if accepted, would guarantee them a cordial reception.

Inspectors Dyson of Massachusetts and Franey of New York were also in favor of Ohio.

Inspector Armstrong of Ohio also accorded the convention a kind welcome to Columbus.

Chief Fell of New Jersey hoped that the invitation would be accepted.

On motion, the invitation was accepted.

The committee on resolutions made the following report :—

NEW YORK, Aug. 30, 1890.

The International Association of Factory Inspectors of North America, in convention assembled, view with extreme gratification and hearty approval the progress made by the respective States here represented in the enactment of factory or industrial laws which, while imposing additional duties on us as inspectors, have afforded us greater latitude for operation and provided for the more effectual prosecution of the beneficent provisions of such legislation. We recognize, in connection with our labors, a growing disposition among employees to conform to the spirit and intention of the factory laws, and the commendable humane effort on the part of so many to provide for the physical comfort and the mental improvement of their employees beyond what the State requires of them. We are justly proud of the work accomplished through factory legislation for the amelioration of the condition of working people, and the influences wielded thereby for prompting the best interests of society. In consideration of what has been achieved in that direction we commend to the attention of the people of the United States and Canada the necessity of adopting a system of factory inspection in every State and Province,—and to the States and Provinces here represented we suggest the wisdom of additional legislation, as follows :—

To prevent the employment of children in factories, workshops and mercantile establishments under fourteen years of age, and compelling all children of such age, and all unable to read and write intelligibly the English language under the age of sixteen years, to attend some public or private school until so qualified. To prevent the employment of any child under sixteen years of age at any hazardous occupation, or at which its health is liable to be impaired, or its morals corrupted, and the employment of any minor under eighteen years of age or of any woman later than nine P.M. or earlier than six A.M. of any day, and that no minor under eighteen years of age or woman shall be employed more than sixty hours in one week ; and we recommend that all legislation for regulating the hours of labor, and the employment of women and minors, be made uniform in the several States, excepting in the Province of Quebec, where French is spoken generally,

where the same degree of efficiency should be required in the French or English language, here represented. That laws be enacted in all States and Provinces requiring that at least 250 cubic feet of air space be provided for each person employed in workshops during the day-time, and 400 cubic feet during the night-time, and that adequate means for free ventilation be provided, and we deem it advisable that children in our public schools be taught the importance to the preservation of health in all conditions of life, and a knowledge of the laws of hygiene and sanitation.

We recommend laws compelling the guarding of machinery, protection of elevators and hoistways, and the erection of fire-escapes where necessary, and that full power be granted to inspectors in every State and Province to guard all unprotected machinery and parts of machinery which may be deemed necessary in the judgment of the inspector. Laws, also, compelling the erection of school-houses upon scientific hygienic principle, and prohibiting the erection of any school building more than two stories in height; also providing that all tenements, public halls, hotels, factories and workshops shall be constructed as nearly fire-proof as possible, with proper sanitary provisions, and that the plans and specifications thereof be submitted to State or local officers for their approval before building operations are commenced.

We submit to the people that such enactments would be in the direction of sound public policy, and would tend to elevate and guard society in general against the evils of ignorance in our toilers, ill health in our children, unsafe workrooms for our industrial population, and protect the lives, limbs and property of all; therefore be it

*Resolved,* That copies of the foregoing be given to the Telegraphic Press Associations for circulation, and sent to the presiding officers of the legislative bodies and governors of the various States and Provinces, and we respectfully urge them to aid in engrafting such laws on their statutes.

EVAN H. DAVIS,  
L. T. FELL,  
JOS. M. DYSON,  
JOHN FRANNEY,  
ROBERT BARBER,  
W. S. SIMMONS.

Inspector Ellis of Ohio moved that the resolutions be adopted.

Inspector Mitchell of Quebec was not ready, and would like to have them amended in relation to children, so as to have them read where the French language is generally spoken, as he thought that that would meet all requirements.

Inspector Coogan of New Jersey was in favor of the proposition of Inspector Mitchell.

Chief Connolly said that in his opinion children should be taught the English language.

Chief McDonald of Ohio, Inspectors Weinthal of New Jersey, Campbell of Maine, Franey of New York, Coogan and Fell of New Jersey, also spoke on the resolutions.

The resolutions were adopted with the following words after "several States,"—"excepting in the Province of Quebec, where French is spoken generally, where the same degree of efficiency should be required in the French or English language."

Chief McDonald moved that all papers read before the convention be printed in the proceedings.

Inspector Weinthal of New Jersey offered the following resolution: "That a vote of thanks be tendered to the inspectors of New York State for their courteous treatment and for their entertainment to the visiting delegates, having done everything in their power to make our stay in their city as pleasant as possible."

Inspector McKay of New York offered the following resolution: "That the thanks of this convention be tendered to the following, — Hon. Hugh J. Grant for his address of welcome; the honorable board of aldermen for the use of their chamber; the Board of Charities and Correction for their invitation to visit Blackwell's and Randall's islands, particularly to Hon. Edward C. Sheehy and Wardens Dunyshy and Roberts who accompanied us on the occasion, and their associates, for their kind attention and entertainment;



also to Mr. Martin Keese, keeper of city hall, for his courteous treatment of the delegates; to Mr. Geo. Mundorff, trustee of public schools, for favors tendered; to the press for impartial and complete reports of our proceedings."

The resolutions were unanimously adopted. A vote of thanks was also extended to the officers of the convention.

At 12.10 A.M. the convention adjourned *sine die*.

RUFUS R. WADE,  
*President.*

Attest: ISAAC S. MULLEN,  
*Secretary.*

(5)

FIFTH ANNUAL CONVENTION  
OF THE  
INTERNATIONAL ASSOCIATION  
OF  
FACTORY INSPECTORS  
OF  
NORTH AMERICA,  
HELD AT  
CLEVELAND, OHIO, AUG. 11, 1891.

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BOSTON:  
WRIGHT & POTTER PRINTING COMPANY,  
18 POST OFFICE SQUARE.  
1891.



## CHIEF FACTORY INSPECTORS.

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RUFUS R. WADE, <i>Chief</i> ,	.	.	.	.	Boston, Mass.
L. T. FELL, <i>Chief</i> ,	.	.	.	.	Orange, N. J.
WM. Z. McDONALD, <i>Chief</i> ,	.	.	.	.	Columbus, O.
JAMES CONNOLLY, <i>Chief</i> ,	.	.	.	.	Albany, N. Y.
JOHN FRANEY, <i>Assistant Chief</i> ,	.	.	.	.	Buffalo, N. Y.
ROBERT WATCHORN, <i>Chief</i> ,	.	.	.	.	Harrisburg, Pa.
WM. S. SIMMONS, <i>Chief</i> ,	.	.	.	.	Hartford, Conn.
ROBERT BARBER,	.	.	.	.	Toronto, Can.
JAMES MITCHELL,	.	.	.	.	Montreal, Can.
F. J. CASSERLY,	.	.	.	.	St. Paul, Minn.
GEO. F. FORD,	.	.	.	.	Nashville, Tenn.

## OFFICERS.

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RUFUS R. WADE, . . . .	President.
JOHN FRANEY, . . . .	First Vice-President.
WM. Z. McDONALD, . . . .	Second Vice-President.
Mrs. M. B. McENERY, . . . .	Third Vice-President.
F. J. CASSERLY, . . . .	Fourth Vice-President.
ISAAC S. MULLEN, . . . .	Secretary-Treasurer.
WM. S. SIMMONS, . . . .	Assistant Secretary.

## ORDER OF BUSINESS.

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Roll-call of Officers.

Calling Roll by States.

Reading of Minutes.

Reports of Committees.

Unfinished Business.

New Business.

Election of Officers.

## PROCEEDINGS.

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CLEVELAND, OHIO, Aug. 11, 1891.

The fifth annual convention of the International Association of Factory Inspectors convened in the Council Chamber, City Hall, at eleven o'clock A.M. President Rufus R. Wade, Chief Inspector of Massachusetts, called the convention to order.

The first business being the calling of the roll of officers, the following were present :—

Rufus R. Wade, *President*.

John Franey, *First Vice-President*.

Wm. Z. McDonald, *Second Vice-President*.

Mrs. M. B. McEnery, *Third Vice-President*.

Robert Barber, *Fourth Vice-President*.

Isaac S. Mullen, *Secretary-Treasurer*.

Wm. S. Simmons, *Assistant Secretary*.

The roll of States was called and the following delegates answered to their names :—

MASSACHUSETTS. — R. R. Wade, *Chief*; John T. White, Joseph M. Dyson, Joseph A. Moore, Isaac S. Mullen, Mrs. Fanny B. Ames, Miss Mary E. Halley.

CONNECTICUT. — Wm. S. Simmons, *Chief*.

NEW JERSEY. — L. T. Fell, *Chief*; P. Callan, J. S. Weinthal.

NEW YORK. — John Franey, Francis H. Coe, Johnson Beers, Hiram Blanchard.

OHIO. — Wm. Z. McDonald, *Chief*; John H. Ellis, Evan H. Davis, James A. Armstrong.

PENNSYLVANIA. — Mrs. M. B. McEnery, Miss Mary O'Rielly.

MINNESOTA. — F. J. Casserly.

MAINE, RHODE ISLAND, WISCONSIN, TENNESSEE, PROVINCE of ONTARIO and QUEBEC, absent.

On motion of Inspector J. S. Weinthal of New Jersey, the reading of the minutes of the fourth annual session was dispensed with.

The mayor of Cleveland being absent from the city, General Myer, acting mayor, was introduced to the convention, and in welcoming the delegates to the city spoke particularly of the importance of the work in which they were engaged. He was glad, he said, to see that the States of the Union were fast recognizing the necessity of providing for the health of the workingmen and women, and still more so to see them calling in the assistance of woman, who is rapidly coming to the fore in all the world's active pursuits and making herself indispensable in many of the departments. He referred to the continual widening of their field of labor, calling in a wider and richer experience than ever before. He again referred to the scope of the work and stated that the organization had its origin here in Ohio. "It is absolutely essential," he said in conclusion, "to uniform, well-directed progress, that there should be just such an organization as this throughout the United States. When this shall be attained, then shall we have that harmony of sentiment and interest that will enable us to use our energies for the benefit of our people."

President Wade replied in a brief manner, expressing the thanks of the convention for the words of encouragement and for the invitation to accept of the city's hospitalities.

President Wade delivered his annual address as follows : —

LADIES AND GENTLEMEN OF THE CONVENTION: — It is five years since we met in the city of Philadelphia, and had the honor and privilege of organizing this Association of Factory Inspectors. Since that, we have enlarged the basis of our representation and can exclaim, "No pent-up Utica confines our powers, but the whole boundless continent is ours."

We have been glad of the presence and co-operation of our colleagues from over the border, and gratefully acknowledge the benefits we have derived from their experience and wisdom. As individuals or as groups we represent separate jurisdictions, and in some respects, more or less important, our duties as inspectors are somewhat dissimilar; yet those official duties of inspection are so far distant and specific that we stand on common ground and are interested in the same general work.

The statutes of our respective States and countries outline that work and define it. It has been one of the aims of this association to produce something like uniformity both in the laws and the methods of administration, and to secure the best results of inspection. One fact is evident to us all, that is, the constant increase of the subjects of such legislation and the enlargement of its scope. It is no longer necessary in the jurisdiction which we represent to spend much time in the enlightenment of legislators. It is now generally admitted to be the primary duty of the State to afford all possible protection to those that labor in the factories and workshops, and to prevent those evils and injuries incident to such employment.

Perhaps it will not be out of place if I make some reference here to the course of legislation in Massachusetts since our last convention. One of the most interesting features of our recent legislation is the act which authorizes the governor to increase the number of members of the inspection department of the Massachusetts district police force by the appointment of two women inspectors.

The governor has exercised the authority thus conferred upon him, and has appointed two persons admirably qualified to discharge the duties of inspection in such of the features thereof as fall peculiarly within the province of women. There are many complaints from women operatives in respect to sanitary matters that can be better investigated by inspectors of their sex, and we expect excellent results from this new departure.

The Legislature of Massachusetts at its last session enacted a law raising the compulsory school age, which reads as follows:—

“In every city and town where opportunity is furnished in connection with the regular work of the public schools for gratuitous instruction in the use of tools or in manual training, or for industrial education in any form, every person having under his control a child between the ages of eight and fifteen years shall cause such child to attend the public schools during the same number of weeks in each school year during which attendance is now by law required in the case of children between the ages of eight and fourteen years, and subject to the same exceptions; and for neglect of such duty the person offending shall be liable to the same forfeiture, to be enforced in the same manner and subject to the same exceptions as now provided by law in case of neglect to require



the attendance of a child between the ages of eight and fourteen years."

One measure that has long been the subject of agitation has become a law this year. It provides that "nine hours shall constitute a day's work for all laborers, workmen and mechanics, now employed or who may be employed by or on behalf of the Commonwealth of Massachusetts, or any county, city or town therein." This act takes effect on the first day of January next. We also made a further advance in relation to the employment of illiterate minors. The law in Massachusetts reads:—

"Every person who employs, or permits to be employed, a minor fourteen years of age, or over, who cannot read and write in the English language, and who resides in a city or town in this Commonwealth wherein public schools are maintained, and is not a regular attendant of a day school, or has not attained an attendance of seventy per cent. or more of the yearly session of the evening school, shall, for every such offence, forfeit not less than fifty nor more than one hundred dollars for the use of the evening schools of such city or town."

Perhaps no matter brought to the attention of our Legislature at its last session attracted more notice in the press and among the people than that relating to the so-called sweating system, in the making of clothing. Finally an act was passed to prevent the making of clothing in unhealthy places. Of course any legislation in restriction of trade, and any attempt of a State to regulate the shipping of manufactured products from other States to places within the Commonwealth of Massachusetts, required the greatest care to avoid the infringement of constitutional rights. The act in question is too long for me to quote here, but I may say in a few words that it has been the result of diligent investigation; it has been drawn with great care and the best results are hoped for from its prudent and impartial enforcement. The powers of the State Board of Health in Massachusetts are ample in such cases, and it is believed that the dangers from infectious diseases which are liable to be disseminated from such sources as filthy workshops may be greatly lessened, if not wholly removed, by the faithful application of this new sanitary law.

I shall have time barely to touch upon one topic which, although it relates to a foreign field, is of great interest to us as factory inspectors. I refer to the question of child labor in England, and the passage by the British House of Commons of an amendment to the factory act, which prohibits children under eleven years of age from working in factories. Since the beginning of the great movement in the mother country for the improvement of the condition of operatives, both children and adults, there has not been a backward step. And there must be a further advance until the limit of age is increased to a point where reason and experience demonstrate that it should be established.

I cannot trespass upon the time allotted to this address sufficiently to allude to other topics and must hasten to a conclusion.

One of the earliest kings was asked upon what plan he selected his judges. He replied, "I look over the kingdom to find a gentleman, and if he knows a little law I do not count that against him."

The success of our work as inspectors depends much upon our personal qualification. However wise and just the laws to whose enforcement we are bound by our oath of office, it is vital to our success that we exercise our authority with discretion. A good law can be shorn of its powers by the foolish method employed in its execution. We must not be swayed in the performance of our duties as inspectors by fear, favor, or affection, yet we can so unite courtesy with firmness and so temper zeal with discretion that we cannot be justly accused of bringing the law into disfavor, or our office into disrepute.

The social opportunities of these meetings are always a source of enjoyment. It is delightful to meet in this beautiful city, one of the fairest gems of Ohio, the Empire State of the central west. The serious occupations of our association, however, now summon us and we must hasten to business

It has been to me a most grateful privilege to occupy this place from the organization of this association. But in my judgment the time has come for me to make way for another, and therefore with cordial thanks for the confidence you have shown in constituting me as your presiding officer, I am ready to take my place in the ranks and unite with you in every measure for the success of this association.

The reading of the president's address was listened to with marked attention and elicited much applause.

Deputy Inspector Franey moved that a committee be appointed on programme. The committee consisted of the following: Chief L. T. Fell of New Jersey, Deputy Inspector John Franey of New York, Chief Wm. Z. McDonald of Ohio.

The secretary made his annual report, as follows:—

*To the International Association of Inspectors of Factories and Workshops.*

LADIES AND GENTLEMEN:—I have the honor to submit herewith the fifth annual report of the secretary and treasurer.

Another year has rolled around, and amid the busy scenes that have transpired, many changes have occurred that have been a benefit to the surging mass of humanity.

At the first annual convention held in Philadelphia in June, 1887, five States were represented, sixteen delegates being present. At the convention in Boston in June, 1888, seven States were represented,

twenty-nine delegates being present. At the convention in Trenton in 1889, six States were represented, twenty-nine delegates being present. At the meeting of the association in New York City, six States and the Provinces of Ontario and Quebec were represented, forty-three delegates being present.

Since the meeting of the last convention a communication was received from George W. Ford, Commissioner of Labor and Inspector of Mines and Factories, located in the city of Nashville, Tenn, asking to be informed of the time and place of the next (this) convention. I accordingly answered, giving the desired information, together with such papers as would be of interest.

Minnesota, through Inspector F. J. Casserly of that State, desired to be informed of the time and place of holding the convention.

I have been unable to hear from Rhode Island, Illinois and Wisconsin, and the inference may be drawn that these States desire no representation in these conventions.

A new chief of factory inspectors has been appointed in Pennsylvania by the name of Robert Watchorn; also an additional female inspector.

Massachusetts has fallen in line with New York and Pennsylvania, by the appointment of two female inspectors. The importance of the duties which they may be called upon to perform will without doubt add much to the interest of those whom it is intended the laws should benefit.

Our esteemed president, Rufus R. Wade, Chief of the Massachusetts Department of Inspectors, who has served the association so faithfully and who has also served four years as its presiding officer, has been re-appointed by Governor Russell of that State. I can without doubt express the sentiments of this convention in saying that it was an appointment well and fitting to be made.

The importance of these conventions will be seen and fully appreciated, when you are informed of the amount of correspondence that has taken place between the secretary and various persons, among whom are those who are at the head of colleges, seminaries, universities, schools, libraries, and various places of learning. These persons have been furnished with the proceedings of the last convention, and have in many instances called for the minutes of previous years, which were furnished as far as it was possible to do so.

Through the Hon. Carroll D. Wright, Commissioner of Labor at Washington, a communication was received from Mr. E. Laporte, of the Department of Commerce and Manufacture, and Inspector of Divisions of Labor in Industries, Paris, France, asking a series of questions to enable him to make a report upon the condition of labor in manufactures in France, and for the purpose of reliable information desired to know as to how the organization of factory inspectors in the United States

was constituted. For the information of the convention I give the questions asked, which are as follows :--

1. How many factory inspectors are there in each State?
2. Are there chiefs of inspection?
3. What is the annual salary of the chiefs and their subordinates?
4. What sum is allowed them for per diem and travelling expenses?
5. How many establishments has each inspector under his charge?
6. How many times each year are the visits of inspectors repeated?
7. What are the means of knowing that inspections are really made?
8. What are the proofs left the workman that the inspector has gone his rounds?
9. What sort of formula must the inspector go through on his visit?
10. What are the recognitions and conditions required to obtain such appointment?

A communication was sent E. Laporte containing answers to the questions propounded. The questions being of a general character answers were given accordingly. The addresses of the chiefs of the various departments, and copies of the laws relating to factory inspection in each State, were also forwarded.

A communication was also received through the Hon. Carroll D. Wright from Mr. M. S. Gruner, General Secretary of the International Congress of Accidents to Labor, asking for reports of factory inspectors in such States where inspection laws exist, for the proceedings of the annual conventions of factory inspectors, and such other documents as would impart information on matters of inspection. In reply thereto the proceedings of each year's convention was forwarded, also a copy of all blanks used by the Massachusetts inspectors, and the addresses of all chiefs of the several departments.

Information was received through the honorable Commissioner of Labor at Washington, that Mr. M. S. Gruner had received reports from New York, Wisconsin, Maine, Rhode Island, Ohio, and the Province of Ontario, also the reports of the convention. Mr Gruner also thanked the secretary of the association for his efforts in thus enabling the reports to be obtained, and the society of which Mr. Gruner was secretary voted a resolution of thanks for the valuable reports from America. Mr. Gruner stated that he would be glad to receive annually the reports of the inspectors of the various States and the proceedings of the conventions, all of which would be of the greatest interest.

I may add here that many persons writing for information have expressed a desire to have sent them the proceedings of the convention, because as they state there is much of interest in them and great benefit derived from their perusal.

The proceedings of the last convention, after much time and perseverance, were carefully compiled, and a copy of each paper was made

and corrected as accurately as possible for the printer. Two thousand copies were printed at a cost of \$263, each department receiving the number desired. Copies were sent to the governors of most of the States, to various individuals, universities, colleges, and other institutions of learning.

The amount of \$70 has been received ; that with a balance of 90 cents from last year, made a total of \$70.90.

There has been expended for stationery, stamps, expressage, telegrams, programmes, and assistance in compiling the minutes, \$72, leaving no balance.

Nearly three hundred letters from persons all over the United States, Canada and Europe, bearing upon various matters, have been received. Two hundred and seventy-two letters have been written, answering inquiries of different kinds.

Since the last meeting of the convention a new feature has developed itself, which has been called to the attention of inspectors, in the form of what is termed the "sweating system," which is carried on in tenement houses in some of our large cities to a considerable extent, to which reference may be made during the session of the convention.

To the promoters of this association there are no words adequate to express the good that has been accomplished through influence wielded that there should be laws enacted looking to the interest and welfare of wage-earners, and I may add, in the words of one of our chief inspectors, that "the wisdom and forethought that suggested the movement were manifest to the promoters."

In conclusion I desire to convey my thanks to the chiefs of the various departments for their uniform kindness and promptness in answering correspondence, and to the members of the association generally. And we may hope that these assemblages will be fraught with interest to the inspectors, with benefit to the employees, and gratification to the community in general.

ISAAC S. MULLEN.

Inspector Franey of New York moved that the report be received and published with the records.

Chief McDonald of Ohio informed the convention that Mr. Henshaw, manager of Jacobs Theatre, extended an invitation to the delegates to visit the theatre at such time as would be most convenient for them. Invitation accepted.

On motion of Inspector Ellis of Ohio, convention adjourned until two o'clock P.M.

ISAAC S. MULLEN,  
*Secretary.*

CLEVELAND, OHIO, Aug. 11, 1891.

Convention met at 2.25 o'clock P.M., President Wade in the chair.

Reading of minutes of morning session dispensed with.

Chief McDonald of Ohio read the following paper on "Defective Machinery": —

#### DEFECTIVE MACHINERY.

It is but comparatively few years since machinery first made its appearance. Prior to that time everything manufactured was hewed and shaped by hand. It was a slow way of production, and the mind of the mechanic set to work to devise a more perfect and speedy method. As a result there has been perfected a complex construction of simple mechanical elements, such as wheels, levers, etc., with such success that to-day every manufactured article of necessity is a production of this world-wonder known as the machine. It has been so perfected that each little part automatically performs its duty as though it were inspired with a human mind, and, in many instances, a machine is now doing the work formerly requiring the services of many men. Does any one cry a halt to this state of mechanical progress? Emphatically, No, with all the meaning the word implies. It is one of the greatest illustrations of the advancement of civilization, and we could not exist without it. We might as well try to prosper without our railroads as without machinery. There have, it is true, been some wonders accomplished in mechanical inventions, yet machinery is still in its infancy, and ere another century I predict that almost every branch of manual labor will be performed by a machine.

The introduction of machinery has proven itself to be an everlasting benefit to the community, but with it came hazardous employment, and while the machine is competent to turn out perfect work it is also able to maim its operator. The inventors of machinery do not seem to look beyond the perfection of production, and the important matter of safety to life and limb has been entirely ignored. It must be admitted that it is an impossibility to make machinery absolutely safe, and while I believe the machine is destined to remain in use so long as the civilized world stands, just so long will the lives and limbs of the people who come in contact with it be subjected to more or less danger. Yet machinery can be made reasonably safe, and it was the intention of laws creating inspection of workshops and factories to, so far as practicable, securely guard dangerous machinery.

As the demand for machinery increases, competition and unskilled construction, the two greatest obstacles impeding scientific construction,

have presented themselves in alarming proportions, and with such rapidity that I feel safe in declaring that perfection in construction of machinery seldom predominates, and, as a matter of fact, defective machinery is the result.

In using the term defective machinery as I do it applies to machinery of every description, and does not mean a defect in any one particular, but defective in general, — machinery and parts of machinery, etc. If the gearing of machinery is so constructed and exposed as to be likely to cause an accident, the machine is defective in that one particular just as much as though its shafting or other details had been designed of insufficient strength, and, in fact, it is these little details that are the most important.

The enormity of this subject is comprehensive, as our entire industrial prosperity is based upon perfection of machinery in production; and many times engineers, eager to succeed in this one capacity, entirely overlook perfection in construction, which, in my opinion, is many times equally as important.

When an industrial plant is to be established, the cost of its erection and equipment is the first thing considered, and generally, from a standpoint of economy, to such an extent that the engineers frequently reduce strength and material in various details, notwithstanding the fact that they are well aware that such reductions will cause the strength to fall far below a recognized safety factor. However, this delusion of economy presents a temptation to lessen expense, which is frequently and freely indulged in until, in many cases, we find our machinery, after being put in operation, defective and weak, breaking down under the most peculiar circumstances, which, when investigated, invariably show evidence of unskilled engineering. It would be unjust to lay the entire stress of this evil upon the engineer, for in many cases he simply produces what is required of him, or, in other words, he is given a maximum price and must conform his designs in accordance. This practice is the most glaring false economy. What has been apparently saved in the design must necessarily be expended many times in repairs, not considering the danger to human life and limb which is caused by endeavoring to operate an unguarded or faultily constructed piece of machinery. From close observation and years of experience in the construction of machinery, and later in the inspection of factories, it is demonstrated to me, and very clearly too, that this is the true status of affairs, and I dare say a very large percentage of the accidents that occur in the industrial establishments yearly are due almost entirely to the direct carelessness on the part of some person, and with ample and proper ingenuity could have been prevented. It requires but little reflection on my part to recall case after case of horrible accidents causing serious loss of life, limb or property, — the fruits of defective

construction and inferior workmanship. While this is true concerning general machinery it is more apparent in special machinery.

The most dangerous class of machinery now in use — if the number of accidents which occur is to be taken as a criterion — seems to be machinery intended for wood-working purposes. Many valuable devices have been invented to prevent accident in its operation, the major portion of which would be but a slight additional expense to supply, and in many instances could be added when the machine is under construction with scarcely any additional expense whatever and certainly in a more mechanical manner, but invariably we find these machines sold, day after day, and put into operation without these life-saving attachments.

I have referred to but this one class of machinery, but it will be found so in machinery of any character, no matter for what purpose intended, from the very crude to the finest and most complicated. It is of frequent occurrence to find a beautiful and costly engine, highly finished, with exposed gear-wheels or protruding set screws, rendering it very dangerous for the engineer, and very difficult to remedy; but had the proper attention been given these details when the machinery was under construction, they could have been easily and well obviated. It is of almost daily occurrence to read of a damage suit being filed against some manufacturer by one of his employees who had been employed to operate a certain piece of machinery. In all probability the machine was just as turned out of the factory of its maker, yet the person who purchased it became personally liable for damage caused by any of its defects or otherwise. It seems to me that it would be more in harmony with the golden rule of justice were the manufacturers of the machine compelled to give the public a construction supplied with all known safeguards for its kind, or, practically speaking, that the builders should assume some responsibility for the damage caused by their own defective productions; and could such a condition of affairs be brought about, I predict that we would then have removed the cause for a very large percentage of the accidents that now occur in our manufacturing industries, which course, in fact, would have a tendency to reduce the liability of accidents in such places to a minimum.

It may not be possible to attain such a position as I have pictured in our production of machinery, but it should be the aim of all employers to secure a uniform system of perfect construction of machinery, and to accomplish this the word "cheap" must be cast aside. There can be nothing good that is cheap; as the term is generally used it implies something common and of small value. In the construction of machinery we should look for two results, and two only, — durability and perfection, both in production and construction. We should start from the very bottom, as we would with an immense and costly building, by laying a



good and solid foundation, and each part in detail should be systematically carried to completion, with but one grand end in view — safe and perfect construction.

There being no discussion on the paper Inspectress Mrs. Fanny B. Ames of Massachusetts read the following paper on “Child Labor”: —

#### CHILD LABOR.

A recent number of the “Contemporary Magazine” contains a short and earnest plea from Cardinal Manning for raising the minimum age of employment of children in England, under the new factory act, from ten to twelve, in the course of which he says, “Nations take rank in civilization according as they legislate for women and children.”

Judged by this standard, the whole world and, notably, parts of our own nation have at least registered progress in right social organization; for they have steadily grown in appreciation of the momentous need for protecting children from the harm of being too early pushed into the struggle for daily bread, as well as the need of protecting the State itself from the growth of a stunted, half-educated, physically incompetent “peasant” class, out of all relation to a republic and a shame to a nation with a Christian standard of a common brotherhood.

A glance at the history of this legislation shows a tendency to the raising the minimum age of employment, the shortening the hours of labor and more strict educational requirements. At the beginning of this century in New England there were children of five and even three years working in factories and brickyards, with thirteen, fourteen and fifteen hours of daily labor. At present the minimum age in Massachusetts and Connecticut is thirteen, in Maine twelve, while New Hampshire, Rhode Island and Vermont still linger at the old mark of ten. Connecticut alone makes eight hours a day’s work, all the other New England States having ten.

In England, the story of child-factory legislation is romantically interesting. It is full of pathos and political economy. Lord Shaftsbury gave his best energies to it, and many of England’s statesmen have pushed and urged upon a reluctant parliament, and in defiance of a greedy manufacturing class, measures for the protection of children in factories that will serve us as models.

But whether in England or this country, such legislation has been not only for the bettering of the laboring people but also for the greater prosperity of manufactures and trade. Just as the shortening of the hours of labor has not, in spite of what seemed the natural consequence, decreased the amount of work done, so the driving of thousands of

children from the factories and mines of England by her act of 1878 did not abate her industrial growth or her prosperity.

There never was an age when child labor could be so well spared as now. Improved machinery has given every adult worker more than double his productive capacity, in some cases it has been trebled and quintupled, so that the increased demands of growing commerce in manufactures is kept pace with by this increased power. Legislation, then, has only registered the changed situation. We need, however, not only legislation but an intelligent public opinion to make our laws effective. We need that every workingman and every clerk in the country shall see the suicidal policy of sending his children into the factory or workshop or store, whether he does it by evasion of law or by full legal right. We need that apparent exception to the wisdom or justice of the law shall not make the public nor the press blind to the larger bearings of it.

To a superficial observer the preventing children from working for wages when the opportunity offers, and there is apparent necessity for such earnings in the family to which they belong, seems like a sentimental and mistaken tenderness for the child, and a wrong to the parents or those upon whom he is dependent. And there are cases of exceptionally strong and vigorous children, or of exceptionally severe penury and need, where the law works hardship. But for one such case there are thousands where it works welfare; and as the law raises the minimum employment age above actual childhood, it helps create a higher industrial condition, because it helps to make it possible for more intelligent, more moral and healthier men and women to grow up engaged in manual work.

Childhood is especially the plastic period. All work or employment should, at such time, be educational; and while education by work is the very ideal of training, all work is by no means educational. In my duty as inspectress I am continually struck by the "sad mechanic exercise," the paucity of training there is in most of the work assigned to children. With rare exceptions it is of the most mechanical nature, calling for very few muscular movements and still fewer mind movements. There is not much more training as the result than falls to the wood and steel that do the larger share of the intelligent work. That such children are not more dulled than they are, is because nature is strong, and in all sorts of by-play and stolen ways their bodies and souls escape the cramped ways and find other outlets for play of faculty.

Massachusetts has done well to include mercantile establishments in the same interdicted list, for all children under thirteen, as factories and mechanical shops. In the larger shops, especially, the heavy strain upon the childish strength, or more especially nerve power, exercised

for ten hours, is, in my opinion, greater than in most factories, the air generally less pure, and the temptations to lax morality, though different, quite as great. The better the business habits of any establishment the greater the order, and the higher the tone of mercantile life, the less the moral exposure. But, in general, the economic and moral reasons for excluding children from factories and workshops are quite as urgent for their exclusion from mercantile houses.

For a child to enter as a competitor into the world of labor means a strain of long hours and severe restraint, destructive alike to body and mind. The same thing happens which happens to a colt put too early into harness and the drawing of loads. It stops growing in size and ages rapidly. That is, there is a fixity of immaturity, a hardening into a condition of half-growth. He can never attain the physical proportions or the capacity for work that really belong to him. Mr. Wade (who, by the way, has never failed since 1880 to utter his word annually to Massachusetts in favor of keeping child labor out of factories and workshops and stores) has, in his report for 1890, called attention to the fact that the physical and mental harm done the child is a more serious fact with us than it can possibly be in European countries, from the fact "that here there is no fixity of social condition or class, so that to cut off the chance for individual development would work a wrong greater in proportion to the child's opportunities of rising." It would be the creation, as I have said, of a peasant class of the most degraded and inferior type, since it would have no orderly relation to our political or social system. So the law does well to put the age of employment beyond the years of proper childhood.

At fourteen, though a higher age might well be substituted, most children have reached the second period of growth, have more fixed tendencies, a firmer physical fibre, and, though still in the golden time for training and culture, are more ready to begin work with less harm to body and mind.

In commenting on the new English factory act which proposes to raise the age from ten to twelve, a newspaper writer quotes English authority for the fact that this law will, in three counties alone, remove 39,000 children from the right to labor, whose aggregate earnings are \$1,390,000. He says England does not need this legislation for her civilization or her prosperity, for she has attained her present enviable position without it. It would, perhaps, be safer to say that what she has of prosperity she has in spite of having had such an army of children employed. What she has besides that is not prosperity nor civilization, and is closely related to her past wrongs done her laboring classes, let Mr. Charles Booth's "Life and Labor of the English People" tell, as well as General Booth's tale of "Darkest England."

It is not at all improbable that the workmen of England will find the wages hitherto paid their little children making its way into their pockets by the more legitimate method of their own increased earnings.

The same writer calls this act a "fanaticism for education," "an exaggerated notion of the value of that kind of education which is given in the public schools." It may be that we often overrate our present school training, and that we shall not adequately provide for the children of the country until we add to the book training an industrial element; but other considerations than "a fanaticism for education" — "a fanaticism," by the way, that one would like to see more widely spread — have doubtless affected legislation, of which the most important one is that child labor is a serious factor in lowering wages of adults, if not of driving them entirely out of many employments.

Boys and girls often become as expert as grown people in certain lines of work, *but they never receive adults' wages*. They, at best, receive wages only a little better than ordinary child wages. If, for example, children are found running card machines in factories, they will probably receive wages slightly above ordinary children's pay, good wages for a boy but poor for a man. It follows, naturally, that an employer will seek such labor where he can easily substitute it for the higher priced. Then, while children are employed, grown people will be idle. Thus, often, the support of the family will fall on its weaker members while the men of the family are idle. What that idleness means, in discontent, drunkenness and the death of domesticity, is too apparent. Thus the employment of children tends directly to the degradation of the whole labor world; to the lowering of wages, the fixing of idle and vicious habits in adults, and the breaking up of proper family relations. I am told that in one town in Massachusetts the women and children are employed to the almost complete exclusion of men. The latter constitute a leisure class, supporting themselves and the saloons from the wages of their wives and children. And just here let me say that the earnings of children are not always a contribution to the income of the family. The child from the mere fact of being an earner has a semi-independence of parental control; is impatient of restraint and disposed to take his own way. If he does not claim all, he claims at least a large share of his own earnings, and with seeming justice. He becomes a spender as well as an earner; but he is still a child and tempted by what tempts a child. If a boy, tobacco and beer, as marking his new independence, rank as coveted objects; the theatre, circus, cheap and doubtful shows, rides, — all that seem desirable to the young, crude and coarsened masculine nature; while the girl lets slip all the small moneys of her small pay that she can keep from the parental clutch for candy, dress and the thousand attractions of the shop

windows. It is often a small part of the small pay that goes to swell the family purse. The influence on the parent is to relax his own effort to support his family. He, also, easily yields to temptations to spend—generally in drink—because Tommy and Katie can earn their own living and are no longer dependent on him. It follows, then, that for the welfare of child and family, as well as of State, there should be no entering the laboring world until the period of actual childhood is passed.

Some very practical aspects of the actual working of the law which forbids the employment of children under thirteen, and requires of all under sixteen a certificate which shows them to have properly complied with the school law before going to work, present themselves to an inspector in Massachusetts. In the "old times" a boy "helped" his father at the store morning and evenings and Saturdays. This same boy, now a man, and having inherited the old business, grown much larger, employs a small crowd of boys or girls; and when he remembers how much of his own early training in business and in good habits came from this happy opportunity of learning good habits in early boyhood, as well as of being inured to endurance and persistence, he is disposed to be impatient with a law that requires him to show his right to hire children in his business. He forgets how different is the whole system. How, instead of working, as he did, under one who had an interest in his learning every step of his business, and who had a parental sympathy with his boyish play and prank, and *tire* and *shirk*, the child employed to-day is in for ten continuous hours, under an employer who is himself driven by competition to strain every nerve, and must of necessity exact every minute and every capacity for work from those whom he hires. He must get the worth of every dollar he pays out in wages or fall behind other employers in the race for trade and profit. In most cases the child never comes in contact with his employer. A series of middlemen, themselves harassed by the strain of our modern mercantile organization, come between. There cannot, in the nature of the case, be any personal oversight or consideration. He forgets how mechanical and limited is the nature of the work given children, and how little real training there is in it, under the present systemization and almost military organization of the modern mercantile house.

A large proportion of children leave school at graduation from the grammar school; and not so large a number, as ordinarily supposed, from actual need. The old American traditions made many a poor family send its sons to college where now the children do not go beyond the grammar school. I know that there is a great increase of the number that go to colleges, and I believe the proportion kept in school

might be greater were there some adequate training for the hand and body; something that satisfied the restlessness of boys especially, and removed the irksomeness of purely book training. The old apprenticeship system partly did this, but it is gone, and we must replace it by something suited to the present need. Training of an adequate kind cannot be found in the factories or shops. Mere tending a machine, or doing up bundles, or running back and forth from one counter to another will not develop faculty. If we had manual training in connection with our public schools I believe it would satisfy this craving for active use of other than the purely literary faculties, and fit our boys and girls for any place in life that should fall to them.

The Baldwin Locomotive Works of Philadelphia have for many years fostered a school of hand and bench work in Spring Garden Institute, just opposite their great shops. Their chief interest in it was that from it they got their best shop-workers. One of the firm told me that they would rather a boy served his apprenticeship as pupil in the school than as learner in their shop.

There can be no adequate regulation of the employment of children that is not related to provisions for education. Massachusetts has just raised the employment age from fourteen to fifteen in towns where there is industrial education. That is to say, if the schools will train by work and for work it will be better for the child to remain longer out of the labor world. When time sufficient has passed to properly determine and establish such education, it will go largely toward creating the ideal education and the ideal industry. It will put another kind of life into what is too often the dull routine of the school, and raise labor to its true dignity. Not a peasant-laborer, dull, obstinate, sullen and envious, but a prince-laborer, quick, willing, glad, self-respecting and self-governing.

The question of vacation employment is one worthy of consideration. At present the law of Massachusetts forbids the employment of children under thirteen at any time in factory, workshop or mercantile establishment, and it requires at all times from children under sixteen a legal certificate of age and of proper school attendance. It has been thought by some that to forbid children almost thirteen from such employment during vacation of the schools was a foolish restriction if not a positive hardship. There are many children who would have nothing to do but run the streets, exposed to temptations to vagrancy and other evil habits, who, it is contended, would be better off in factories or stores, where they could earn a bit and be kept out of mischief. Now the streets may not be good for them, nor is the confinement and restriction of the shop or store for ten long hours of each day during the summer a good preparation for the school year that must follow when September comes.

In the smaller stores where there are fewer employees and where there are exceptional conditions of care from the employers there would be less objection (always provided the law permitted); but the law cannot pick and choose among employers; and I confidently affirm that to allow children under the legal age to be employed would be sheer cruelty in a majority of cases and open to great abuse. It would result in unscrupulous parents pushing their little ones into all sorts of unhealthy and severe workshops, and completely break down the growing and orderly obedience to the law that is fast coming to be general. All good citizens ought to help sustain such wise and humane legislation, even when it produces temporary vexation in their own cases. There are light out-door employments which the law permits, and for exceptional cases of poverty such work should be found for children who need it.

The ideal thing would be to make the school provisions cover the entire year; to occupy the four summer months with manual or industrial education; and, where there were compulsory education laws, permitting parents who should apply to receive exemption certificates for their children whom they desired to withdraw from any school work, or to make other provision than that provided by the vacation schools. The vacation school should be wholly different from the ordinary school, in being occupied with manual work; gymnastics; swimming lessons; elementary practical science in the woods and fields, games of out-door skill, archery, tennis, etc.

Poor little Pat, who loves to haunt the wharves and hang around the open saloon door, or peep into the mysterious billiard room, would be allowed some natural vent for his physical energies, his natural curiosity and even his vagrant and roving tendencies, which would now be exercised under guidance and legitimate conditions.

There is nothing in manual labor that should of necessity associate it with mean conditions of life. Illiteracy, slums, squalor, dirt, coarseness, are no natural concomitants of hand labor.

Dr. Icorseby, an Englishman, visiting Lowell in 1842, went home to write a book on the refinement, intelligence, modesty and high moral character of the Lowell operatives. He says, significantly, that he did not see one among them under fifteen. If there are any causes at work, to-day, that tend to make the manual laborer of our country different from those described by Dr. Icorseby, we must see to it that they are removed. And certainly one greatly depressing cause of a lower tone is the employment of children; the consequent lowering of wages; the degradation of the physical type; the low standard of education and fixity of half-development; the demoralization of domestic relations and reversal of natural laws of dependence.

On the completion of the reading of the paper President Wade stated that the paper was open for discussion.

Inspector Franey of New York said that the paper read by Mrs. Ames of Massachusetts deserved some attention and consideration, not only by the convention but by the press. Its importance was great and it was fit and proper that some discussion should be made. If there were schools for manual training it would be better for children ; it would be a good thing and keep them out of trouble and mischief, and all dangers which might confront them ; working so young they have but little chance to improve, and become intelligent. If put to work at manual training they would know how to use their hands. He had seen many desperate cases of need among children, had seen misery and poverty, all on account of these children not being educated. If necessary, adopt measures by the State that these schools for training should be kept up by the State and appropriations made for the same.

Inspectress Miss Mary O'Rielly of Pennsylvania said that it might appear to the convention a piece of presumption on her part to speak on this subject, as she was only a new member of the association and of the inspectors department of Pennsylvania. She had seen twelve years' service in the factory and the time passed there had been a pleasant one, and had formed the basis of much that she now knew. She thought that Mrs. Ames' paper was in the right path ; she would say that in Philadelphia there were many children under twelve years of age who were employed in various vocations, and she had tried and exerted her influence to have a law passed the Pennsylvania Legislature relating to having less hours of labor for women and children. She thought that the subject could only be agitated. Pennsylvania did not countenance child labor. She hoped that the convention would pass a resolution relating to the subject of child labor.

Chief L. T. Fell of New Jersey said that he did not intend



to say anything in regard to the paper read by Mrs. Ames of Massachusetts; but thought after mature deliberation, that he would say a few words in relation to it. He thought that something should be done in the matter of child labor, and would see that in New Jersey the matter was pressed in order that a law might be passed that would meet the requirements. Child labor was not economical, but a detriment to older persons. He challenged any one to find a child employed under twelve years of age in New Jersey. He was satisfied that the work in New Jersey would be carried forward in a proper manner to the advantage of child labor. If more attention was paid to training children more good could and would be done. He thought that New Jersey was in the right line.

Deputy Inspectress Mrs. M. B. McEnery of Pennsylvania said that she was in accord with the sentiments of Mrs. Ames' paper and that the ideas suggested should be carried out. She always had the interest of children at heart; there ought to be a training school in Pennsylvania.

Chief McDónald of Ohio said that he was unlike his friend Fell of New Jersey, but he recognized that it was the most perplexing and economical question now before the people; that the paper by Inspectress Mrs. Ames was the right thing. There was in Ohio what is called an industrial or reform school. He thought that no good could come by taking the children out of the factory or workshop. "The school that I speak of does not provide for the child. In these schools can be found children who have committed many crimes and there are some who have not. There should be training schools for manual training where there should be taught such things as would be of a practical benefit." Child labor has been spoken of in every convention. He thought that the suggestions by Mrs. Ames should be taken hold of, and every town in every State do all that it could to carry them out.

Inspector F. J. Casserly of Minnesota said that he came to hear and not to speak, but he was in accord with the paper read, and the various inspectors had expressed his sentiments, and he hoped that every State would take some action.

Inspector Simmons of Connecticut said that he approved all that had been said and that which had been read by Mrs. Ames. In Connecticut, the enforcement of the child labor laws was under the control of the board of education, and that so far as he knew the law was carried out. He believed that there should be more care in regard to the matter.

Inspector Davis of Ohio remarked that he had not found much trouble in his district in having children removed from employment who were under age; but after removal what was to be done with the child? What was to be done with those that were out of school? He was in accord with all that had been said, and hoped that each State would make some provision for the child.

Deputy Mrs. McEnergy of Pennsylvania said that the employment of children under twelve years of age was increasing. She would be pleased for Chief McDonald to inform her of how he obtained reports of accidents.

Chief McDonald gave the information that there was a law compelling that accidents be reported. Accidents to children did in a great measure decrease the employment of children.

Inspector Armstrong of Ohio said that there were not so many children employed in his district as formerly. He was in favor of the paper read by Mrs. Ames of Massachusetts. There had been some trouble in cigar factories relating to children under age; so far as he knew there were none now employed under sixteen.

Inspector Joseph M. Dyson of Massachusetts stated that the remarks made by those who had preceded him were somewhat in line with the paper read. But what is wanted is that the legislatures be appealed to in order that some suitable laws should be enacted that the inspectors could work under. If you haven't the laws nothing can be accom-

plished. If laws were enacted the tendency would be that children under age would leave such places where they were employed. The question of child labor is a serious one.

Chief Fell of New Jersey said that he was surprised at the increase of child labor in Pennsylvania; if the laws in Pennsylvania were duly enforced it would be a good thing.

Inspector Coe of New York said that he was very much in sympathy with the paper read by Mrs. Ames. In New York child labor had been to a great extent abolished. A stringent law was the only way to get the children under age out of the factories. So far as he knew there were none under sixteen.

Inspector Franey of New York moved that a committee of five be appointed to draft a series of resolutions to be presented to the convention bearing upon the various laws and embodying the idea of child labor, calling upon each State to enact such laws as were not on their statute books.

Mr. Stewart of the auxiliary fire alarm service was introduced to the convention, and made some brief remarks relative to the system. He invited the delegates to attend an exhibition of the said system at Waddell's Hotel any time the convention thought proper.

Chief Fell of New Jersey moved that the invitation be accepted.

Chief McDonald of Ohio moved that the hour be 12.30 P.M., Wednesday, on the adjournment of the convention.

There being no further discussion on the subject of child labor, Inspectress Miss Mary E. Halley of Massachusetts read the following paper on "Practical Factory Life":—

#### PRACTICAL FACTORY LIFE.

The tendency of recent legislation has been in the direction of greater restriction in the hours of labor, of more humane laws in regard to minors and women, and of enactments which look to the sanitary, social and moral good of wage earners. So large a part of our population is employed in factories that our legislators must ever find in this fact a broad field for wise measures and prudent action. Never until the

establishment of the factory system did men come into competition with women, or men and women with children; and to correct the evils which thus arose, factory acts were introduced. With the introduction of machinery came an increased nervous strain imposed on the workman. This increased draught made by machinery on the nervous energy of the laboring classes has produced many harmful results. For example, intemperance is traceable often to the manner in which laborers work. When labor encroaches on the reserve fund of energy men in a manner must resort to stimulants. The scale of living for the worker when tools were used was not high, but he was, in a sense, more independent than now, and felt the impulse of his independence. Under the present system his independence is in a large measure destroyed. And we may remark that as machine industry comes to be more and more perfected this natural dependence becomes more marked, and with it increases the need of wise and protecting law.

The establishment of the factory system, which was followed by an increase of population, has brought with it all those social and political problems which come with the congestion of population. It is certainly an evil that working people are crowded together in tenement-houses, which become natural hot-beds for diseases of all sorts,—mental, moral and physical. It is the duty, then, of legislators to adjust the conditions under which factory people live in such a manner that the possibilities of our magnificent civilization may be realized. Labor is honorable; it contributes to the public welfare; it is, therefore, worthy of the public care. The worker is honored among us; he is the benefactor of his race, because always producing something for the common weal. In honoring and protecting labor a nation is strengthening its own hands. Our sympathies for those employed is wonderfully quickened by putting ourselves in their places and asking ourselves how we would wish to be treated under similar circumstances. They are fellow beings; they have feelings like ourselves; they are stung by injustice, softened by kindness, grateful for the protection which the law affords in preventing oppression which selfishness often threatens. It is a humane measure that the law interposes its authority in forbidding children, under a certain age, and at a period of life which ought to be devoted to their physical, moral and intellectual development, to work. And it is likewise a humane measure that limits the hours of labor for females, and guards, as far as possible, their sanitary condition.

In the brief time allotted to me I will confine myself to a general statement of the effects of factory work on the life of women and children employed in such labor, speaking perhaps no new truth, yet telling facts as they have been brought home to myself from practical experience. No one who is observant in the matter will fail to perceive that the work of mill girls is to most of them a species of mere

drudgery, done without much aim or purpose, and that they have little interest in it beyond the thought that it is the means of earning their daily bread. The constant toil, automatic routine and physical strain have their effects on the health of women employed in factories. And this is especially noticeable in the fact that such women have that peculiar look which comes from living in impure air and sleeping in badly ventilated rooms. Though there is little work which requires great muscular strength or exertion, yet the alertness and exactness of attention, and constant application required, exhaust the nervous vitality very rapidly. Most of the operatives are necessarily on their feet nearly all of the time, and this fact has an unfavorable effect upon the health of the women and girls. A partial remedy for the evils resulting from this almost constant standing has been provided in the laws of Massachusetts, which direct that there be provided for female employees "seats to be used when said females are not engaged in the active duties for which they have been employed." The high temperature necessary for some processes of cotton manufacture renders the operatives liable (especially during the winter) to injury by taking cold when they pass into the open air. This, with the fact that the air is often filled with flying fibre and particles of cotton, produces injurious effects upon the lungs. These things seem to account in a large measure for the number of female employees who die of consumption.

Another fact is, that very many who reside at a distance have their dinners brought or carry it with them, and are thus deprived of a warm, well-prepared, nourishing repast. Of those who go to work at an early age the greater number are females, and by their monotonous toil they are much weakened at the age of thirty, to say nothing of the very large number who never reach that age. Continuous factory toil has a tendency also to physically unfit women for the duties of motherhood; it deprives them of training in social and domestic duties and in many cases brings on premature decline.

As to their moral condition in a general way I would say that factory life is in its tendencies injurious to morals. But I don't know that it is worse than any other kind of life where so many people meet promiscuously and with so little restraint. I do not think that mill people are as a class inferior in morality, in the ordinary sense of the word, to any equally numerous class in the country. On the contrary, I believe they are superior in this respect to any class of men or women who do not work. Everybody who knows anything about the matter will bear testimony to the fact that a very large percentage of factory girls are not only sound to the core morally but are at the same time beautiful types of Christian devotion and fine womanly feeling. I dare say you will find as large a percentage of generous, self-sacrificing sisters and daughters among mill help as among any other class of help in the

world. Their self-sacrificing spirit is shown in this way, that very frequently the earnings of the mill girl go to the support of an aged father, mother, or for the education of a brother, and cases are by no means rare where every cent earned month after month is devoted to such a purpose. The tendency which people sometimes have to slur mill girls arises rather from their vulgarity than immorality, and this touches one of the worst features of factory life. In a large number, particularly of those who go to work young, much of the modesty which so becomes a woman is lost, and this is due mainly to the coarse, immodest language which is so common in some rooms. Of course this evil is not an essential one. It may or may not exist; but from what I know I believe it is quite common in rooms where young people of both sexes work together, particularly where discipline is in a measure lax. In such condition the delicacy and modesty of thought, deportment and speech which are so precious and lovely in the character of young women are in danger. But these girls are not so liable to be led into actual vice as some whose very ignorance of evil and of the need of avoiding or resisting it sometimes exposes them to temptation unarmed and unprepared. The mill girls are to a certain extent familiar with coarse language, but this fact is not in their case a mark of extreme depravity; it affords no evidence of unchastity. Working people, I am convinced, are more pure and free from vice than most moralists think them. Their time is filled by their regular occupation and they have little leisure for vicious thoughts or mischievous desires. It is among idle men and women that such evils find most recruits. I have never been impressed with the idea that factories are dangerous to the morals of grown women, not nearly so dangerous as stores and shops; but I think the hard labor continued for years brings on a craving for stimulants, and if such operatives associate with drinking people the road to ruin is short and easy.

The most dangerous age of morality is from twelve to fifteen years. One of the worst effects of allowing children to go to work at an early age, is the partial freedom from parental control. Streetwalking, questionable companionship, coupled with the suggestive and unclean conversation so common in their daily lives, have brought ruin to many who might otherwise have been safe. After all the home is the deciding element for good with very many, nearly all. The home where the parents by precept and example show their children how to persevere in the midst of peril. Parental restraint and home training can do much to offset the evils of factory life. Whatever lessens the tendency to employ children in factories or reduces to a minimum the evils of such employment is in the interest of justice and humanity. The weariness and strain of continual daily labor tends to dwarf the physical development of the child and dull his mental faculties. This is evident if we

compare the physical condition of school children with those employed in factories. The pale, pinched cheek of the latter, his dwarfed stature and sluggish mind are in striking contrast with the healthy appearance, natural growth and keen intelligence of the average child of the same age at school.

The introduction of machinery, as has been remarked, tended to the employment of children and women, because it gave a place to unskilled labor and the work once performed by men could be done by women and children at less cost to the manufacturers. The greed of the latter, joined to the improvidence of some parents, is responsible for so many children being employed in our factories. It is the duty of the State to properly protect those who are to be its future citizens against any injustice which greed of parents or tyranny of employers would impose. The end is attained in no better way than by the law of compulsory education. In these days education is of prime necessity. It is or should be within the reach of all; it opens up so many chances of earning a livelihood and is in a great measure a preparation for good citizenship. While it may seem an advantage to employ so many thousands of children who might be an aid to their families, it is really an injustice to deprive them of the means of fulfilling their future duties as citizens in keeping from them that intelligence which our age and country demand. "The children of to-day will be the men and women of to-morrow and must be fitted for that high station of citizens who are to have a voice in the affairs of our government."

The force by which the world has chiefly grown is the love of what is right; the feeling of obligation to make things better, to remedy injustice, and to remove hurtful ignorance wherever we can do so. In these latter things wise legislation can do much. We ought to know more about factory people, about their circumstances, their ways of living, their thoughts and the tendencies and effects of such a life as theirs upon character and civilization. It is not enough that people who have wealth and culture pay the operatives their wages. Justice requires more. The working people are among the most valuable and indispensable of all the children in the country. Their life at best is hard and uninviting, with little room or means for the refining influences which vary and brighten life for many others. The laws protect them while at work, why not in their homes where so much of their life is passed, and where their character is so much influenced? We insist on ventilation and proper sanitary conditions in factories in the interest of the toilers. Why not insist that the same condition shall be observed in their homes? Massachusetts has always taken an intelligent interest in its laboring people, and it is gratifying to our pride that men, women and children have greater security for their rights in that State than has been secured in any other part of the nation. While it is true that the

tenement-house system breeds vice and disease, it is as true that the tenement-house holds many an honest, industrious, hard-working and thrifty family. Such families need better houses. They need the help of legislation, for they are fathers and mothers who love their children as well as you love yours, and have aspirations for them as pure, yet are powerless to carry them out because of grasping landlordism, or lack of means to escape the contaminating influences about them. Hence, I suggest the need of systematic inspection of such tenement districts, believing that many evils detrimental to health and morals might be removed. If cleanliness be akin to godliness, the bettering of the condition under which many mill operatives live, in providing well-ventilated and thoroughly clean tenements, would lead toward morality and improved physical condition, and help them to make the best of their life and of themselves as far as the conditions of such a life will allow.

President Wade announced that the paper was open for discussion.

Inspectress Mrs. Ames of Massachusetts said that she thought the paper a very proper one. Miss Halley had brought out the good merits of those employed in factory life. She had visited several places and thought that the girls in those places would compare with those of the Boston Latin or high school. Many conditions could be affected by some good law.

Inspectress Miss O'Rielly of Pennsylvania said that she felt disposed to say something about factory life, as she had had many years' experience, and could speak with sympathy for the factory girl. It was true that the tendencies of the girls in very many respects could be as good as any other class. To her it had been quite a congenial life. She thought that any attempt to legislate would not be well, but an appeal to humanity would accomplish more than any law.

Chief Fell of New Jersey said that a plain statement of facts appealed to us all. He never considered factory life an immoral life; but there should be better conditions to work under, such as sanitary and ventilation. When this work has been accomplished we shall feel that our duties as inspectors have to a great degree been consummated.



Inspector John T. White of Massachusetts said that he was brought up in a factory and had never seen anything which could be construed as not being good influence; all of the bad influence came from the outside and not from the inside. If there were any, education would in all probability remove it.

There being no further discussion Chief Fell of the committee on programme stated that there would be a practical illustration of ventilating school-houses, to which the press and school committee, also teachers and any others, would be invited, at the two o'clock session, and Inspector John T. White of Massachusetts would read a paper on "Erroneous Theories of Ventilation."

A committee on resolutions was appointed as follows: Inspector Franey of New York, Chief Fell of New Jersey, Inspectress Mrs. Ames of Massachusetts, Inspector Casserly of Minnesota, Chief McDonald of Ohio.

Inspectress Miss O'Rielly of Pennsylvania moved that a committee of five be appointed to consider what was best for the association. Inspector Franey stated that the committee on resolutions would take such matters under consideration. Miss O'Rielly's motion was withdrawn.

Chief McDonald stated that preparations had been made for an excursion on Thursday to Put-in-Bay, to leave at eight o'clock A.M. The press was also invited to attend.

Inspector Coe moved that the invitation be accepted.

On motion of Chief McDonald the convention adjourned, to meet at nine o'clock A.M. on Wednesday morning, August 12.

ISAAC S. MULLEN,

*Secretary.*

CLEVELAND, OHIO, Aug. 12, 1891.

Convention was called to order at nine o'clock A.M., President Wade in the chair.

Reading of minutes of last session dispensed with. Inspector J. E. Weinthal of New Jersey read the following paper on "Manual Training, What it is, What it is not, and What it aims at": —

MANUAL TRAINING, WHAT IT IS, WHAT IT IS NOT, AND  
WHAT IT AIMS AT.

MR. CHAIRMAN, LADIES AND GENTLEMEN OF THE CONVENTION:—  
Two years ago when the convention was held in Trenton, New Jersey, I read a paper on this same subject. My aim then was simply to show what can be done. This paper is to show what should be done.

Manual training differs from industrial training in this: manual training aims at something else, while industrial training ends in itself, that is, manual training aims at fitting the pupil for successful study. For instance, penmanship is manual training; but you never write for the purpose of writing in itself; you write to convey an idea, or to describe something that you have seen or heard. Then, again, they differ as a brick differs from a completed building, since a little child looks upon its toy house as a thing in itself, but upon its building blocks as the instrument with which it may construct a house of any shape. Still further, while a gold brick is valuable, it is not valuable for itself alone as a gold brick; but is valuable because of that which may be made out of it.

Since manual training aims to assist or fit the pupil to do more thorough, better and rapid work, it should be taught much earlier than industrial training. Is it any wonder that there is such a great difference of opinion in regard to it, since it is so imperfectly understood? There is room for grave doubts in regard to the justice, to say nothing about the practicability, of introducing the full line of industrial training in our public schools. Should not industrial training be relegated to special schools? But industrial training is not the subject of this paper.

Manual training is neither a subject nor an art in itself. It is a method of training in all branches taught in the public schools, and, as such, we will proceed to handle it.

In order to be successful in this training it is absolutely necessary to clearly define our aims and objects, and work accordingly. In other words, we must be intelligent workers and not blind followers.

The first thing aimed at is the thorough training of the child's perceptive faculties. One of the first methods to accomplish this is clay moulding, and clay moulding as generally handled is not only useless, but, in some instances, injurious, instead of being, as it should be and may be, one of the most valuable means of sense-training at our command. We can make this more clear by outlining a lesson. But before doing so I wish to call your attention to this particular line of work, described by one of our leading papers under the date of Jan. 19, 1889, as follows:—

"In the rooms of the board of education are on exhibition several boxes of clay work, made in the lower primary grades by children between the ages of five and eight years. There are different sizes of spheres, cubes, cylinders and prisms, and all are very perfectly moulded. There are also representations of various kinds of fruits, and the moulding is very true to natural forms.

"The idea of drilling these small children in clay moulding is to inculcate a basis of the knowledge of *form*. Thus far this teaching has been very successful and has broadened the observing powers of the pupils. It is intended to select some of the best work in clay moulding and paper to combine with the educational exhibit which will be sent to the Paris exposition. The particular interest is in the fact that such perfect work has been produced by children of such tender years."

Now as to the lesson. Take, we will say, a boy six or seven years of age; give him a piece of proper, tempered material, and show him how to mould it into a sphere; this will teach him patience and some skill of hand. While both these things are valuable and desirable they are not the prime things we are aiming at in our lesson. After having completed a sphere,—perhaps of a given size,—we ask him to look around and see whether he can find anything which is the same shape, or spherical. The probabilities are he will at first say "no;" but upon pressing further, being careful not to be too suggestive, he may remember that his ball and marbles are the same shape, and, encouraged by his success, he may suggest an apple, or perhaps the door knob, etc.

It is just here that we accomplish our best work in clay moulding, namely, giving the pupil the power to correctly recognize, through his senses, the objects that are around him; and I may add that that is one of the most essential things required of any boy that spends the greater part of his time in the factory or workshop, to correctly recognize the objects that are around him.

He will next timidly suggest that the lamp shade is shaped like one half of his sphere, and the ink bottle, the bell, etc., are of the same shape. If he should be slow in recognizing these hemispherical forms, ask him to cut his clay sphere in two. Now we have in this lesson an epitome of all the aims and plans of manual training.

Manual training sometimes dwells too much on the training of the senses alone. There must be an un-sensing process to make our training all that is to be desired. In a word, we must look after other faculties as well as the perceptive. Paper cutting, drawing, free hand and mechanical, designing and tool work are taken up in rotation, each having its proper place and purpose. The question may be asked: What is the particular outcome of all this? And in reply I would say: It develops closeness of observation, accuracy of perception, vividness of imagination, quickness of the eye, facility of the hand, care and judgment in expression. It cultivates a knowledge of relation, of fitness and adaptation, all of which are useful in the general duties of life, and which render their possessor either better producers or better able to appreciate the production of labor into which the elements of design enter. It teaches the pupil patience, thoughtfulness, order and refinement, and brings him in contact with all that is elevating in past art.

Will some opponent of manual training mention some subject taught in public schools that will give the American workman the desire and ability to make his surroundings more elevating and beautiful? Can you mention anything taught in the public schools that will be of such practical benefit to the boy and girl that may have to spend the best years of their life in a factory or workshop? Will not such a course of study make them better mechanics? Will it not give them more confidence in themselves, to plan, arrange and produce better work? In this hurrying and bustling life of ours, do you ever realize the vast amount of labor-saving machinery that is brought into existence every day, displacing help that must find employment in some other branch of industry? Would it not be best that our system of education be so arranged that as our children leave school, and grow up into manhood, they can more readily adapt themselves to the new conditions in which they may be placed, or must we let them learn by hard knocks, as we have learned, not helping them along until their faculties are sufficiently developed, that they may gain a little foothold? Will you answer me these questions, gentlemen?

We, the advocates of manual training, are amply able to prove, by work already done, that the training which is the subject of this paper will do, and wherever properly tried has done, all and more than we ever claimed for it; and in this method of education I am happy to say little New Jersey takes the lead of all other States in the Union. About what is being done in some of our schools in regard to this highly important subject a great deal might be said. Every social problem is hindered in its solution by at least two classes; those who are opposed, and those who allow their enthusiasm to run away with their judgment. Manual training is no exception to this rule. We of New Jersey

believe that the school laws of our State are more liberal and progressive in this direction than any of the other States; we think we can show results in the direction of manual training (we do not mean industrial training) which cannot be equalled elsewhere in this country; and we believe that the arrangements, equipments and, indeed, all phases of all that belongs to factories will be the first to feel the good results of this long-needed training. This will be manifest in safer, surer and better-cared-for machinery, more economical production of driving power, more useful and progressive operatives, better homes and home surroundings, better service, hence better pay; in a word, better everything. All this we believe will be the outcome of manual training in our public schools.

Vice-President McDonald being in the chair announced that the paper was before the convention for discussion.

Inspectress Mrs. Ames thought that the subject was a very important one; some notice should be taken of so great a measure. Manual training schools should be where matters of benefit could be taught. Boston had one of the best in the country, the Institute of Technology.

Inspector Hiram Blanchard of New York read a paper on "What can be done to improve the Fire-escape System now in general Use on Factories and Public Buildings," as follows:—

#### WHAT CAN BE DONE TO IMPROVE THE FIRE-ESCAPE SYSTEM NOW IN GENERAL USE ON FACTORIES AND PUBLIC BUILDINGS?

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE CONVENTION:—The subject which has been assigned to me, viz., How can the system of fire-escapes be further improved? is not capable of extended and discursive elaboration

To fairly introduce the matter, I may say that architects do not, as a rule, draw building plans for the purpose of making the utility of their structures subordinate to the interests of human safety, and the fire-escape of to-day, with its harsh regularity and generally rusty appearance, is an outcome of a combination of false economy, shortsightedness, carelessness and incompetent architecture. As officers whose duty amongst other things it is to take into consideration the question of the personal safety of the employees in factories and workshops, no doubt all of us have at times experienced a feeling of regret that the necessity of re-

quiring additional means of egress compelled us to order the erection of a fire-escape which we know will disfigure the appearance of an otherwise beautiful building, and which unpleasant requirement would have been entirely unnecessary had the architect given as much attention to the welfare of the future occupants of the premises as he did to the decorations for the benefit of the public eye. It is for the reason that a fire-escape must be made to conform to the varying conditions of the different buildings that it is difficult if not impossible to set down any rules whereby an outside iron fire-escape may be improved. The location of the persons in the building must be taken into consideration, and the escape must be placed where it can be quickly reached in case of danger. Then again it ought to be as far from stairways and elevator shafts as possible. Experience has shown that there are more lives lost through suffocation by smoke in burning buildings than through immediate and direct contact with the flames. A spoonful of smoke taken into the lungs is sufficient to deprive a healthy person of consciousness, and therefore in locating a fire-escape due regard must be given to the whereabouts of all air-ducts and open flues in which a draught may circulate. It is certain and well known that open elevator shafts have caused the loss of millions of dollars in property and hundreds of human lives by disastrously spreading what would otherwise have been small and inconsequential fires. Stairways which are not enclosed and which open directly into the different rooms are also responsible for much damage to person and property. The well-known facility, therefore, with which these two very essential means of communication between the various floors of a building carry and distribute smoke and flames, must be taken into consideration in determining where a fire-escape should be placed in order to be of the utmost service in time of need. It is singular, to say the least, that the architect or owner rarely thinks of putting up a fire-escape, or otherwise providing for adequate means of egress, when the building is incomplete and unoccupied. After that an inspector comes along, and in his capacity of protector of human life insists that additional facilities be provided for the ready escape of the occupants of the building. He finds that the stairway and elevator have been located where they will be least in the way and most convenient, and oftentimes they are found arranged so as to make the premises a veritable human fire trap. A fire-escape then becomes an absolute necessity, and if it is ordered to be placed where it may be of the most service but at the same time interfere with the light or the fair appearance of the building, appeals are made at once for an alteration of the order, and it is sought to subordinate utility to business necessity or architectural harmony. Should we allow ourselves to be influenced by the pleadings of those who are more interested in the appearance of the front of their buildings or in the display of their business signs than in the safety of

the people in their buildings, there would be many more lives lost or in constant danger in every State. It is one of the unpleasant features of factory inspection that it is our business to correct the errors in judgment of otherwise bright and careful men, landlords or employers, and to compel them to perform a plain public duty by requiring that ample means of escape be provided for inmates of their buildings; and as this class of men usually stand high in their respective communities it oftentimes necessitates a considerable degree of what might be termed moral courage to inflexibly insist upon the carrying out of expensive instructions. I have in mind many instances which occurred in my own State wherein the inspectors were threatened with the crushing vengeance of great political influence if they insisted upon obedience to the mandates of the law, and I know that, notwithstanding this, the requirements were insisted upon and were carried out.

Few people stop to think that as factory inspectors we are brought in contact with the brightest and probably the most influential element of the country—the business men and manufacturers—and that we are daily requiring them to do things and to go to expense which they never before saw the necessity of and are not always convinced of the propriety of even after receiving written or verbal orders. We are required to view many matters from a stand-point diametrically opposite what they consider their best interest; and I know of nothing in the line of my duties which causes more friction than the enforcement of the fire-escape clause of the New York State factory laws. This may seem strange when we consider the great importance of guarding human life, and how precious every one regards his own safety; and my experience is that some men, otherwise humane, and thoughtful of the rights of others, wipe the golden rule from their category of precepts when the question of putting up a fire-escape arises.

In common with all persons who have given any thought to the matter of fire-escapes, I am opposed to the erection of an upright ladder, with or without balcony attachments at each floor, and calling it a fire-escape. Even trained acrobats might meet with disaster in descending one of these in a moment of peril and excitement, when crowded by others frantic to escape a terrible fate. Such an alleged fire-escape is an element of danger in itself to the large majority of people who would be compelled to use it. We all know how awkwardly a person unused to it will descend an ordinary ladder, firmly planted on the ground, when no danger is imminent. With women and children, and with most men, this awkwardness becomes hazardous when the ladder is arranged along outside of a high building, with the added danger of stepping on fingers and endeavor to hurry. Such a fire-escape is to be condemned without much consideration. It has no redeeming features. Even the argument that a straight ladder escape is free of one danger

which is sometimes present in an inclined ladder or stairway escape, that of passing in front of a window, whence smoke or fire may be issuing, does not, it seems to me, warrant the approval of a straight ladder escape. Such an escape has been occasionally passed, but never with favor, they are permitted to exist simply as an evil which cannot be amended or entirely obliterated.

I believe, when an outside fire-escape must be erected, that it should consist of substantial balconies, connected by stairways a foot and a half or two feet wide with a reasonable tread, say of eight inches, with balusters or handrails on both sides. The incline of the stairway should be the same as of an ordinary household stairway. I think that the steps should be made broad enough so that a firm footing would be had on every step; the narrow and open steps usually found on fire escapes being likely to trip a person unaccustomed to them. Perhaps the best steps for fire-escapes can be made of angle iron bars, set on edge, about an inch apart, so that they cannot catch the boot heel or hold an accumulation of snow or ice. Perforated castings of three-quarter inch thickness also make very good steps, but if thinner are risky in frosty weather. The top balcony of a fire-escape should connect by a ladder with the roof if possible. The bottom balcony should have a drop ladder, counterbalanced by weights suspended by chains running over pulleys. The pulleys should be covered with a hood. This ladder can readily be forced to the ground by a person's weight. I do not think a loose drop ladder, which must be lifted into position, a very safe affair. These drop ladders weigh from seventy-five to one hundred and fifty pounds, quite a heavy lift for many people, and such a ladder is difficult to put in position. The specifications for such an escape are simple and can be had of almost any State factory inspector. It is not patented, requires only an ordinary mechanic to erect it, and may be made so as to improve the appearance of many buildings with a judicious use of architectural trimmings and paint. This escape is also a valuable aid to the firemen in offering good opportunity to fight the flames. Where buildings adjoin and are separated with fire walls, and the location of the stairway and elevator permit it, a balcony extending from one or two windows on each side of and across the party wall will furnish a ready and ample means of escape for an ordinary number of people. Of course it is understood that there shall be no bars or closed shutters at the windows to prevent the use of either building in case of emergency, and no obstruction other than the glass, which might be easily broken should it intervene to prevent the people from passing out of the building and into the other. For this escape it is usually requisite that both buildings shall belong to the same person or firm, or else they must be good neighbors who trust in each other's honesty. We have many such escapes in the city of New York, and the



fire department of that city accepts them as filling all necessary conditions. The tower fire-escape is one of the best, but it can be further improved by placing it entirely apart from the main building and connecting it at each floor by short bridges; by this means it is impossible to fill the tower with smoke, which has happened with loss of life in several instances. The tower idea of a fire-escape has been improved upon in my opinion by Hon. Henry Dorn, ex-chief factory inspector of Ohio, who embodies the tower into the main structure and reaches it by balconies at every floor, the people being required to pass outside and along the balconies before entering the tower. This is an economical and absolutely safe escape, and should be studied by every architect, its simplicity offering every opportunity for architectural decoration and requiring less land space than an ordinary stairway, and at the same time adding strength to the structure.

Iron folding escapes cannot be too severely condemned. In our climate the extremes of heat and cold derange the hinges, swivels and sockets with which such contrivances abound, and corrosion soon sets in to weaken or prevent the escape from opening freely. They are never in readiness for use when wanted, and are as costly as a first-class escape and always unsightly and clumsy. Portable ladder escapes which run on tracks near the eaves and which may be swung in front of all the windows if everything is in a favorable condition have never had the test of experience to my knowledge, but it strikes me that they require too much handling and manipulation to be of great value. They might prove serviceable on hotels or tenements where all the rooms cannot be connected with a central fire-escape. Endless chains and ropes may have their uses, but the former are dangerous from the fact that the speed with which they may allow a person to descend cannot well be regulated; and the latter have the drawback of being likely to burn, wear apart across the corner of the window sill and thus permit of a fatal drop, and if not renewed or tested every two or three years are liable to be rotten while having every appearance of being sound. I maintain that any contrivance which requires the hands to be wholly or partly relied upon as important factors in facilitating the escape of a person from a burning building is to be condemned. Human beings are not trained to use the hands as limbs of locomotion, and all fire-escapes which are of the greatest value will be made so as to take into consideration the fact that men and women use their feet with greater celerity and security in getting out of the way of danger.

There cannot be too many means of escape from a burning building, and perhaps some of the devices which I do not here endorse may at one time or another have saved a life, but the fact remains that had there been sufficient care taken in the construction of buildings so as to provide for ample ordinary avenues of egress in case of danger from fire

no person would attempt or be required to use the novel methods which we see sometimes put upon the market as fire-escapes, their only recommendation being their ingenious complexity; the fatal objection to them being the certainty that they will be out of order ninety-nine times in a hundred when necessity is most urgent. There are other systems of fire-escapes which I have not referred to because they need no discussion. I lay down this broad rule as being the safe one to follow in the matter of securing the safety of human life in factories, hotels, tenements and public buildings: namely, there ought to be at least two ways of escape, at opposite ends, from every room and every such building, and if fire-escapes are necessary let them be so made that they will always be ready for instant use, and that they will provide for escape by natural methods and not by the hands, by diving, dropping or sliding. In this as in many other things the old way is the best.

Discussion being opened, Inspector J. E. Weinthal of New Jersey said that he believed in the suggestions made in Inspector Blanchard's paper, especially about tower escapes; that the workmen should be drilled in order to know where the escape was located. New York was perhaps under a little advantage, as was also New Jersey. Have had some good results in New Jersey.

Inspector Dyson of Massachusetts said that he was pleased to see that some one had the same idea in regard to fire-escapes that he had. His opinion was that fire-escapes should be so constructed as to be used at any time. Trouble from fire is mostly from smoke. The matter was a very important one.

Inspector Coe of New York was of the same opinion as Inspector Dyson of Massachusetts. He would say that the fire-escape law of New York was not defective because of an amendment to the law. The matter was quite a problem in New York.

Inspector White of Massachusetts said that fire-escapes were good things. In Massachusetts plans must be submitted; there is no trouble in factories, as the doors are always open. He would like to see some plan whereby escapes could be put on lodging-houses to advantage.

Inspectress Mrs. McEnery of Pennsylvania said that she would like to see fire-escapes put on private houses. She thought that the location of fire-escapes should be considered as far as possible.

Inspector Isaac S. Mullen of Massachusetts read the following paper on "Tenement-house Workshops; their Uncleanliness," as follows:—

#### UNCLEAN WORKROOMS IN TENEMENT-HOUSES.

MR. PRESIDENT, LADIES AND GENTLEMEN, OF THE INTERNATIONAL ASSOCIATION OF INSPECTORS OF FACTORIES AND WORKSHOPS:— Perhaps no question affecting the interests of a certain class of wage earners has been of more importance than that relating to the sweating system, as practised in tenement-houses in very many cities in this country. Careful observation, close scrutiny, a rigid and thorough examination, have developed many facts relating to this pernicious system.

That the sweating system exists cannot be denied, and the fact of its existence is now agitating the minds of well-thinking people. In one of the States this great evil has been so far recognized that a special message was sent to the Legislature concerning this system, and their attention called to the feasibility of making laws to subdue as far as was possible the making of garments in unhealthy places, and imposing a fine in case the requirements of the law are not carried out. The press has denounced the evil in terms that cannot fail to be understood. From the pulpit it has been condemned in strains that cannot be refuted and that have opened the eyes of the most sensitive to the enormity of this stupendous feature now existing. Associations of operatives who are specially interested in the making of garments in unhealthy places, and who are opposed to sweat shops, are using every effort to bring about such a state of affairs as will be of a thousandfold advantage to those who work in legitimate workshops. Physicians have made examinations, and found that should this sweating system be allowed to prevail, circumstances emanating therefrom would result in untold misery and disease. The census department, and boards of health, have looked into the matter with diligence, and found a somewhat peculiar state of affairs.

The evils emanating from the sweat shops are many, and those who work in these close, ill-ventilated rooms become the victims of many diseases. We may lawfully desire water to quench our thirst, food to nourish our bodies, clothes to cover us, and comfortable shelter and accommodation, if such desires be regulated by reason and confined within proper bounds. "Every man and woman should eat and drink,

and enjoy the good of their labor;" everything should be so arranged as to produce pleasure and enjoyment, even among the poorest class of workmen. Man or woman should not be robbed of the true glory of his nature nor be degraded below the level of brutes. Some part of man's or woman's time should be devoted to the good of society, and to that labor both of body and mind which is essential to the true happiness of humanity.

Men and women are confined for long hours, their health injured, and their intellectual and educational improvement prevented; they are deprived of that recreation which is necessary for the vigor of their animal system, and from receiving that knowledge which they ought to possess. Every human being is endowed with mental faculties which, if properly divided, would produce the greatest sum of human happiness, but confined to toil in sweat shops all interest is lost in matters relating to intelligence. The aims and pursuits of every intelligence ought to correspond with the faculties produced. These sweat shop workers are content with food that is mean, the wearing of apparel of the coarsest material; their education is stinted or altogether neglected, and the common rights of humanity denied.

The principal conditions of mankind in all emergencies require to be improved. Workshops should be rendered clean, airy and salubrious; the mechanic and every class of wage earners should be made more comfortable and more open to healthy improvements.

A work of immense magnitude, however, requires to be accomplished, and vast exertions are indispensably necessary before the evil is undermined. Were we to inspect the narrow lanes, cellars, garrets and parts of some of these tenement-house sweat shops or workrooms we would find scenes that the most refined could form no conception of. But the cause of this is not so much to be attributed to the individuals themselves as to those in general society. Society has never yet provided for the means of education, or moral training, or employment, or what is necessary for their comfortable subsistence; and general society is, therefore, accountable in part for the system now so prevalent.

There should be provided proper hours of employment and proper remuneration for labor to all who enjoy health and vigor of body and mind; for every human being ought to be actively engaged in something which contributes to his own benefit and the good of others. An absolutely idle person is both a burden to himself and a nuisance to society. It is contrary to the evident design of the Creator, in bestowing upon us both physical and moral powers, that they should remain dormant or unemployed. Therefore the plan of cooping up thousands of healthy persons in tenement-house sweat shops, without being employed in regular mental and bodily exercise, is evidently contrary to nature and consequently subversive to true happiness.

The true method of promoting the comfort of these workers in close, bad-smelling rooms is to furnish them with the means of instruction and employment; to provide for them comfortable habitations, and to teach them the rules of economy, temperance and moral order, and to see that their children be properly educated in the different branches of useful knowledge. There are many ways in which such objects could be accomplished,—the building of schools, lecture-rooms, and the erection of workshops for the manufacture of all kinds of clothing under healthy conditions. A vast amount of misery could thus be prevented, happiness diffused, and improvements carried on to an indefinite extent. In many respects much requires to be effected before matters can be thoroughly improved; but such improvements ought not to be engaged in unless it be to do good to our fellowmen, to remove nuisances, and to promote the general advancement of society. Then those scenes in tenement-houses which are now to be seen in some of our cities, those pitable objects that dwell therein, some in places unfit for the abodes even of animals, now inhabited by human beings, would disappear. Many aspects would be changed into cheerfulness, improvements would be seen rising to view, and healthiness would pervade where filth now exists.

If we look into these tenements we find them crowded with human beings, whole families with their miserable shreds of furniture cooped up in one narrow apartment amidst gloom, filth and disorder, with scarcely any conveniences, or opportunity for enjoying the cheerful light of heaven and the refreshing breeze. In such situations, numerous diseases are engendered, the true enjoyment of life prevented, and the period of human existence cut short by nearly one-half of its average duration. These things might be obviated, and industry find its way there, thus becoming the seat of a happy and prosperous population.

Now all these and similar evils might be removed and the requisite improvements carried forward, affording employment for the industrious workingman and woman. The grand question to be determined is, is it expedient and requisite that such improvements should be attempted? If such questions can be answered in the affirmative, then all other considerations ought to be laid aside. A new impulse would be given to human activity, and a new aspect would appear for the general good of humanity.

It cannot have been overlooked that, in view of the intelligent observer, fevers and infections generally spread with the greatest facility and make the most dreadful havoc among the lower classes or orders of society. This is owing in part to the unclean state in which their houses are kept, every part of which affords proper materials for the production and detention of pestilential effluvia, and their ignorance of the importance of pure air and the consequent necessity of daily ventilating their apartments. Pure air is as essentially requisite to the health and vigor of

the animal system as wholesome food and drink; yet nothing is less attended to in the economy of health by the great majority of mankind. Because air is an invisible substance, and makes little impression on the organs of sense, they seem to act as if it had no existence. Hence we find that no attention is paid by the lower orders of society to the proper ventilation of their apartments, the air in which is in many instances unfit for respiration.

There have been found crowds of tailors pent up in close and sometimes damp apartments, from early morning until midnight, without even thinking of opening their windows for a single half hour for the admission of fresh air; and consequently they are continually breathing an atmosphere highly impregnated with the noxious gas emitted from their lungs, and the effluvia perspired from their bodies, which is most sensibly felt by its hot, suffocating smell, when a person from the open air enters into such apartments. The sallow complexion of such persons indicates the effect produced by the air they breathe. If tene-ment-house sweat shops were better ventilated, the disorders which flow from the circumstances just stated would be effectually prevented.

Much, however, is wanted to complete the enjoyments of this class of people, who are so closely confined without a separate apartment to which they can retire for mutual exercise. Whole families are frequently crowded into a single apartment, surrounded by filth and noxious exhalations, where the light of day is scarcely seen. In such habitations, where the kitchen, the bed and closet are all in one narrow apartment, it is next to impossible for men or women to improve their minds by reading or reflection, amidst the gloom of twilight, the noise of children and the preparation of meals, even although they should feel an ardent desire for intellectual improvement.

In order that working people may be stimulated in their mental powers, they must be furnished with the domestic conveniences requisite for attaining this object. They should be paid wages to enable them to procure such conveniences. The long hours of labor, and the paltry remuneration which is received in these sweat shops, so long as such domestic slavery exists, will form an insurmountable barrier to the general diffusion of healthy enjoyment. As slovenliness and filth are generally the characteristics of ignorance, so an attention to cleanliness is one of the distinguishing features of cultivated minds. Cleanliness is conducive to health and virtuous activity; keeping the body clean is of great importance. Attention to cleanliness of body would also lead to cleanliness in regard to clothes, victuals, apartments, beds and furniture. The necessity of pure air to health and vigor would lead to the propriety of having rooms well ventilated, and the feasibility of admitting the refreshing breeze. By such attention fevers and other malignant diseases might be prevented, vigor and health promoted,

and the whole building and its inmates present an air of cheerfulness.

But, as knowledge tends to liberate the mind, to subdue the principles of selfishness, and to produce a relish for cleanliness and comfort, when it is more generally diffused we may expect that such improvements as those to which we allude will be carried forward with spirit and alacrity, nuisances be removed, and cleanliness and comfort attended to in every arrangement. And what an interesting picture would be presented, when the great body of mankind should be raised from a state of moral and physical degradation to the dignity of rational natures, and to the enjoyment of the beauties of the Creator.

I have endeavored to speak in a general way of what I deem would be of benefit and interest to the workers in close, ill-ventilated rooms; of general improvements which might be made tending to their good, physically, morally and intellectually; and of the principles upon which great benefits could be accomplished, the practicability of stringent efforts in subduing this evil, and the utility of clean workrooms.

With the law on the statute books of Massachusetts relating to unhealthy workshops, the requirements relating to the manufacture of clothing, the penalty for not complying with the law will, in my opinion, benefit not only the places where such clothing is made, but be a safeguard to those who may attire themselves in the garments made therein. The effect of the law will be looked forward to with great interest, especially by those who work in legitimate workshops. There can be but little doubt but beneficial results will accrue from the enforcement of the law, and the opinion of those opposed thereto be changed. Let us hope that the cause of the existing evils will be removed, and opposite effects be produced.

The matter to which I have alluded is not a picture, but a reality, which shows us how human beings can live together under some of the conditions that I have enumerated. It is a reality from which we ought not to turn away our eyes; it sets before us the evils which require to be counteracted, and the great obstacles which require to be surmounted. Such views of the existing state of these unhealthy places ought to stimulate us to exert every energy and to use every judicious and powerful means which has a tendency to promote the accomplishment of subduing this great evil; and if the requisite means are employed for the prevention of the evils of which I have spoken, we may rest assured that our labors as inspectors will be crowned with success.

Legislators may make, unmake and modify the laws, we may engage in profound discussions and investigations; but, unless the community in general cry out against the evil and dangers of the sweat shops, all plans will prove abortive, "our superstructures gradually crumble into dust, and, like the baseless fabric of a vision, leave scarce a wreck behind."

In the discussion of the paper read by Inspector Mullen of Massachusetts, Inspector Franey of New York said that there was a difference between tenement-house workshops and the sweating system; that the sweating system in New York had been a source of great evil. It was usually carried on by foreigners, who could speak but very little English, and employed a number of their countrymen. They worked from seventy-two to one hundred hours a week, with paltry wages. The system still prevailed to a greater or less degree in New York, Williamsburg, Brooklyn, Syracuse and Buffalo. It was begun in the cigar-making business, and he believed that there were many people in the hospitals of the country who would not be there if they had not encouraged the manufacture of and smoked cheap cigars. In many of the clothing manufacturing rooms the workers slept in them. The sweating system ought to be wiped out. It was not a good thing to be eating, sleeping and working in the same room. A most stringent law should be passed; something should be done, and the matter regulated. In New York it was recognized as an evil. The Legislature had considered the matter, and the evil had been denounced by the press.

Inspector Coe of New York said that it existed to very little extent in Buffalo.

Chief Fell of New Jersey stated that the system existed in that State, but not to the extent indicated by the term sweating. Families take the work which is sent around. The evil is the small wages. Work is done from early morning until midnight. There had not been much trouble in keeping the workrooms clean.

Inspectress Mrs. McEnery of Pennsylvania said that it existed in some parts of Pennsylvania to some little extent. The work was only done for a short season.

Inspectress Mrs. Ames of Massachusetts said that she thought it would be well to have laws passed in those States where the evil prevailed.

Inspector Franey of New York said that the most valua-



ble property in New York City was that which was occupied by those who were employed in the sweating system.

There being no further discussion on the paper, Inspector Callan of New Jersey read the following paper:—

What benefits have the working people in New Jersey derived from the passage of the labor laws? This is a very broad question, and one that can be answered from many points of view. In order to learn the benefits derived from the passage of these laws, it is necessary to know what they are. Whatever laws have been passed in the interest of the working classes in the State of New Jersey were not passed by the free will of her Legislature, or by the suggestions of her humanitarians, or by the advice of the inspection department, but solely by the demand of the working people themselves, expressed through their labor organizations; for, while Legislatures may listen to suggestions from those individuals who have the good of humanity at heart, yet it is only those who control the greatest voting on election day that our law makers will do anything for.

The first enactment especially in the interest of labor was the repeal of what was known as the conspiracy law, which made it a crime for workmen to combine, to peaceably persuade, advise or encourage their brother workmen to enter or leave the employment of any person or corporation for the general benefit of their special trade or calling. This may now be lawfully done.

The second enactment made the store order system of payments illegal, which heretofore left the working people, more particularly those in the mining districts, at the mercy of corporations, who paid no cash wages, but forced their employees to deal at the company's stores, at such prices as they saw fit to charge.

The third enactment was a law against convict labor, where it competed with or injured honest labor, and the establishment in prisons of what is known as the piece-price system.

The fourth is known as the tenant house law, which requires landlords to give three months' notice before evicting a tenant, provided, of course, that the tenant's rent is paid.

The fifth was an act making it illegal for horse-car companies to require more than twelve hours a day, instead of sixteen and eighteen, as formerly, from their drivers and conductors.

The sixth was a law resulting from agitation by the working people through the State, together with a general demand from the public, compelling horse-car companies to grant a system of transfer tickets on their lines, and also an act requiring railroad companies to recognize tickets as good until used.

The seventh was an act making the first Monday in September a legal holiday, to be known as Labor Day; and New Jersey was the first State in the Union to give this recognition of labor.

The eighth was the passage of an act against the employment of Pinkerton and other foreign armed detectives during labor troubles, no officer being now allowed to act except such as are citizens of the State.

The ninth was a law against the employment of children under twelve and fourteen years of age in factories, and also making it illegal to employ children, minors or women, over ten hours per day.

The tenth was the enactment of the compulsory education law, requiring all children from seven to fifteen years of age to attend school during a certain portion of the year.

The eleventh is a law for the general safety, health and comfort of the working people, while employed in factories and other places, more or less confined and dangerous, or detrimental to health, under the old conditions.

The passage of these various laws, and their enforcement, have conferred great benefits on the working classes of New Jersey; but among the best and wisest of them are those regulating the employment age of children, and their compulsory education.

A full or adequate account of benefits that flow from the passage of the two laws last mentioned cannot now be given. It is only in the years to come that their good results can be fully shown in a large body of healthy and intelligent citizens. The dense ignorance, dwarfed intellects, depraved tastes and enfeebled bodies of the children employed in factories previous to the enactment of these laws will be in strong contrast to those whom these laws have been instrumental in producing. It is no longer possible to find children of nine and ten years of age working in factories, standing on benches to make them high enough to reach machines that were made for, and intended to be operated by, the fathers or mothers of the helpless victims of an inhuman and destroying system. Children in New Jersey are not now, as formerly, allowed to work twelve or thirteen hours a day, often under cruel and heartless taskmasters, who had no regard for their mental, moral or physical conditions, but who sought only to get the most work from them for the very smallest compensation they could offer.

There is no more mingling of the sexes indiscriminately in crowded workrooms, nor is their mental culture neglected. Through the untiring efforts of Chief Inspector Fell, who went in person before the governing bodies in the different cities, schools were established for the working children, and truant officers appointed, whose duty it is to see that children who are employed during the day attend evening school,

and that those whom the inspector discharges from factories, because under the legal age, attend day school.

During the last year, which was the first year of the enactment of the compulsory education act, a large number of children were returned to school, and so great was the increase in attendance on this account, that boards of education found difficulty in accommodating all of them. Many of the manufacturers in towns and cities throughout the State have recently established evening schools at their own expense for the children in their employ, in obedience to a public sentiment which demands better treatment of the young people in factories and workshops.

In a census bulletin on education, prepared by Mr. Blodgett, special expert agent for the United States government, the public school enrolment for the different States gives the States of New Jersey and Idaho a large increase in school enrolment, only slightly less than their respective increase in population.

These facts speak for themselves. When we find employers coming forward and generously establishing schools for their young employees, and a continual increase in the establishment of good public libraries in the various cities of the State, it is a sure sign that the people of New Jersey are earnestly supporting both the letter and the spirit of these laws for the advancement of the industrial population of the State.

It is not required by employers that men and women should any longer lose their identity as human beings, and become mere machines, with numbers substituted for their names, as was formerly the case in several factories. There was a time not long since, when, should inquiry be made for John Doe at the office of a factory, it would be responded to by a telephone message, sent to the foreman in charge of the room in which he worked, to send down "Number 21." Civilization has now advanced so far in this State that John Doe himself will be called, instead of "Number 21."

Nearly all the employers in the State now approve of the labor law as a benefit to humanity; and in the district in which I am located I find little difficulty in securing their assistance and co-operation in changes required for the comfort, health and convenience of those employed in their factories.

There is far less risk to life and limb than formerly. The dangerous machinery must now be guarded. The foul-smelling, ill-ventilated workroom, with its dirt-stained walls, must have fresh draughts of pure air, and be limewashed regularly. The separate toilet, wash and dressing rooms for men and women are part of every new factory, and are introduced in old ones whenever practicable. The heated and dusty workrooms are now generally provided with cooling fans and blowers, to carry off the dust. Stairways and hallways must be kept clean and

well lighted. There are better means of egress, and outward swinging doors have been put up. The fire-escape law is being vigorously enforced, and new fire-escapes are going up on all the large factories throughout the State. I am pleased to mention that many of the proprietors of factories have adopted the system of fire drill suggested by an inspector in the last annual report of our department, so that employees will be properly trained to avoid the confusion of panic likely to occur through a lack of discipline in case of fire.

But, notwithstanding all this, some of the working people themselves say that they have derived little or no benefit from these laws. Such invariably belong to a class of persons who think it should be the duty of the inspector to turn out the employer, and put them in charge. There are others again — happily very few — who say that the laws are an injury to them, particularly where the State prevents them from putting their children to work before they are of legal employment age, and compels their attendance at school. I will here repeat the argument of one of those persons, who may be taken as a fair representative of his small class. His little daughter, eleven years old, was discharged by the inspector from a factory where she was employed for the wages of \$1.25 per week. "The State," he said, "has no right to interfere with my family affairs, and tell me my child is not fit to work, or that she must attend school; I am her father, and I claim the right to decide those questions for myself; besides, I am a poor man, and her wages, though small, do something to help keep the house." Upon inquiry, it was learned that this man in his own home was not only a tyrant but a drunkard. His other children did not attend school, but were obliged to go to work before they were of sufficient age; and when they were able, they left him: one enlisted in the navy, the other is at present in the State Penitentiary, serving out a term for burglary.

The great majority of working people, however, declare that they have derived great benefits through the passage of the labor laws. They feel that the State has an interest in their welfare; that their lives and limbs are in less danger from unguarded machinery, or fire; that, should accidents happen to them, the State, through its agent, the factory inspector, will bring all the facts of the case to the attention of the proper authorities, who will see that justice is done for the injured, so far as the law can secure it.

Employers, too, are now beginning to realize that these laws were not passed as a menace or injury to them, but only in the interest of their employees, who have some rights, which, as good citizens, they are bound to respect.

There is one subject which I wish to mention, and I do so because many of the working people, at the first inception and agitation of these measures, and their subsequent enactment as laws, seemed to have

thought that, as a result of their passage, they would receive an immediate increase in wages. I regret to state that, so far as my observation goes, wages have not increased in the State of New Jersey. Trade unions appear to be no longer able to secure advances in wages, or to prevent frequent reductions by employers, who are united, and determined to increase their profits or decrease their losses by such a course. As a rule, strikes are failures; and, when successful, it is only after a bitter contest, which necessarily results in loss and injury to those thrown out of employment, and imposes a burden upon the employed for the support of their unemployed brethren. The strong competition in the manufacture and the sale of the products of labor in factories and workshops leaves only a small margin to the employer, in most kinds of business the management of which is often attended with loss, especially to the smaller establishments. The most direct mode of reducing losses or increasing profits is to reduce the wages of employees, and resist any increase of their pay when it is demanded. These grinding and destructive contests between manufacturers, known as competition, continually tend to decrease wages and reduce profits. Then the great number of applicants for work in almost every department of industry, daily augmented by foreign immigration, presents to the American workman of to-day, and the average young mechanic starting out in life, a picture by no means inviting. Among those who are naturally more gifted or more favorably situated than the masses of their fellows there are many exceptions; but I speak of the great body of the working people, and to them the present situation is not a happy one.

Excepting the building trades, in our State there is hardly a shadow of what might be called an apprentice system; and the young man of to-day has a very limited chance to acquire thorough skill and mastery in any branch of mechanical business by which he can make a good living for himself and his family, and save something for his declining years. Nearly every trade is broken up into sections by the introduction of machinery, the result of which is to change the old order of things, from reasonable certainty of steady work and wages, to doubt, uncertainty, and fear of what the near future may bring. It is not strange that discussion, agitation and discontent unhappily prevail to a great extent among the industrial masses in the centres of population.

We are in the midst of intellectual, social and industrial activity, such as has never been known in the history of this country. It is to be hoped that the increasing intelligence of the masses, and the growing tendency of employers, by compulsion as well as their own volition, to treat their employees fairly, or at least humanely, will show a steady improvement in their circumstances. Besides this, there is a quickened and growing public opinion that demands a just recognition of the rights of labor by employers, and that the industrial masses of America, under free institu-

tions, shall participate more fully and generally in all the blessings of a government which they have done so much to establish and preserve, and the ultimate success and permanence of which must yet be determined by the measure of happiness and prosperity which it confers upon them.

Both the limits of this paper, and the subject with which it deals, forbid that I should here make any attempt to propose or suggest measures or remedies otherwise than by legislation of the character referred to, for the betterment of the working people. There are important social, economic and political questions to be determined by themselves, in a country where every honest man, on election day at least, however humble, is the equal of the highest. There is an increasing interest among them in public measures, of State and national importance, that are continually discussed and calculated to introduce better social conditions and larger industrial rewards for the wealth-producers of this land.

My duty in this matter is done when I have directed attention to some of the benefits which have come from the measures adopted by the Legislature of the State of New Jersey. They have, in fact, done a great deal to prepare the people of that State for a higher and better civilization, which will confer blessings upon them and upon the children of coming generations. With slow and painful steps, and often with bleeding feet, the ranks of labor and those who march with them move forward to higher and better conditions. This is the law of life, the salvation of labor, the decree of the Almighty. It cannot be repealed, it cannot be defeated, it cannot be reversed. The acts of the Legislature to which I have referred are onward steps which bring us nearer to the goal, and will in a large measure contribute to the groundwork upon which a better social and industrial structure shall at last be raised.

On the discussion of the paper read by Inspector Callan of New Jersey, Inspectress Miss O'Rielly of Pennsylvania said that it was an interesting paper. It was time that the strife to-day was being carried on by the laboring classes. Education was necessary to bring about good effects among the children. Trusting to the few did not bring about good results.

Chief Fell of New Jersey said that he was pleased with the paper prepared by one of his deputies. It was one of the best that could be produced from New Jersey. It was a complete answer to any criticism which has been or may be made of New Jersey inspectors.

Inspector White of Massachusetts said that he hoped that the improved condition in New Jersey would extend outside of the factories. Something must be done to educate the children. The labor organizations could do a great amount of good, and should act upon the suggestions made as soon as possible.

No further discussion. Chief Wade of Massachusetts moved that the convention adjourn until two o'clock P.M.

ISAAC S. MULLEN,

*Secretary.*

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CLEVELAND, Aug. 12, 1891.

Convention opened at two o'clock P.M.

President Wade in the chair.

Inspector White was called upon to read the following paper, on "Some Erroneous Theories of Ventilation":—

MR. PRESIDENT AND MEMBERS OF THE CONVENTION:—When, two years ago, at Trenton, I had the honor to address the members of this association upon the subject of ventilation, I devoted my remarks almost wholly to the injurious effects of impure air upon the health of children, and the consequent necessity for much better provision for securing an ample supply of pure air in our school buildings. Last year, at the meeting of the association in New York, I endeavored briefly to show, by description and diagrams, in what manner the best work had been done in my own State since the law was passed requiring better ventilation in such buildings. You will, perhaps, think I owe you an apology for again speaking upon the same subject; but experience has shown that we learn in the same way that we teach our children, by constant repetition; and I am satisfied that "line upon line and precept upon precept" will be necessary before the mass of our people are educated to appreciate the vital importance of this question of ventilation.

One great obstacle met with in the efforts of the inspectors to induce the school authorities to ventilate the buildings under their charge is the fact that nearly all the work done in that line up to the time of the enactment of the law of 1888 had resulted in almost total failure, and the money thus spent had been practically thrown away. This may seem to some a rather broad statement, but I will hazard the assertion, that, as compared with some of the best work done in the last three

years, there were not in 1888 six well-ventilated school-houses in Massachusetts. That most of these failures were due to the fact that the methods adopted were based upon false theories, has, I think, been conclusively proved; and I have taken, as the subject of discussion in this paper, some of the prevailing erroneous theories of ventilation, with such hints at some of the successful recent methods of accomplishing good work as may seem appropriate.

One of the most persistent errors in regard to the matter of ventilation is that relating to the nature of a gas that forms a small portion of the air we breathe, and which is chemically known as carbon dioxide, and commonly called carbonic acid. Notwithstanding all that has been said and written to the contrary, a very large number of the people with whom an inspector comes in contact in his official work still believe that this gas is the most pernicious impurity to be found in the air of our school-rooms; and that, as it is known to be heavier than air, it settles to the floor, and therefore provision must be made for removing it from that point. Dr. John S. Billings, in his excellent work on "The Principles of Ventilation and Heating," says, in effect, that, until a person knows that all this is nonsense, and knows why it is nonsense, it is useless to discuss problems of ventilation with him. Such a statement may do very well for so eminent an authority as Dr. Billings, but I fancy that an inspector of buildings would not have a very pleasant time with many of the school authorities, with whom he discusses ventilation, if he talked to them in that way. I have often been told, by college-educated men, when I have said that outlets for foul air should be in or near the floor, that I was, so far, undoubtedly right, for, said they, "we all know that carbonic acid is heavier than air, and so sinks to the floor."

No longer ago than last winter a gentleman who appeared before a legislative committee at the State House in Boston gravely stated as his opinion that it would be better to cut holes in the walls of the school-rooms near the floor, to allow this terribly poisonous carbonic acid to run out,—which he seemed to think it would do like so much water,—rather than to put in the expensive systems of ventilation which he said had been ordered in the school-houses in his town by the State inspector. It will not do to assume that the men who entertain these views are uneducated. The only fair statement of the case would be, that a man may be a well-read lawyer, a good biblical scholar, or a first-rate business man, without having much knowledge of chemistry or of the physical properties of gases. Moreover, it should be remembered that it is not so very many years since similar erroneous theories were taught in the text-books in use in our public schools.

There is another class of people who have given sufficient attention to the subject to learn that carbonic acid is not the most pernicious element in impure air as it exists in school-rooms, and that it does not



sink to the floor on account of its weight, who suppose that, because the air as it comes from the lungs is warmer and therefore lighter than the surrounding air, it will rise to the top of the room, and that the proper place for outlets for foul air is in or near the ceiling.

It may seem to you hardly necessary to say that both these theories are in the main false, and need not be taken into consideration in providing means for ventilation; and yet an immense amount of money has been wasted in attempts to ventilate school-rooms by methods based upon one or the other of these theories. In a large school-house in my district, in which many hundred dollars were expended a few years ago in an attempt to secure better ventilation, the openings for the removal of the foul air are near the ceiling, and almost directly over the inlet for fresh air from the indirect steam radiators. Of course a large part of the pure air supplied escapes without doing any work in ventilation, and a large amount of heat goes with it; and it is not surprising that tests for carbonic acid showed the air at the breathing line of the scholars to be exceedingly impure.

Another way in which a great deal of money has been spent to no purpose is in the application of some patent ventilator to the top of a cold flue, in the vain endeavor to induce an upward current of air therein. All sorts of ingenious and fanciful caps and cowls have been devised to assist in pulling the air out of a room, the principal effect of which is to more or less obstruct what little upward movement of air there might otherwise be in the pipes or flues which they cover. Some of them are probably useful in their proper places to prevent a downward draft of air; but this is of no use in a school-room, as no pipe or flue for removing air from such a room should be liable at any time to a downward draft from an open top; and for this same reason there should be no use for any automatic valve or damper in such a flue.

Another prevalent error is in regard to the amount of air required to secure good ventilation. People read in some medical or scientific book that a person takes into and expels from the lungs about ten or twelve cubic feet of air per hour; and they seem to think that, if that amount of air is supplied for each person, it is all-sufficient,—which it might be, if one could inhale pure air through one tube and exhale the air through another, sending it to such a distance that it could not possibly mingle with the supply. Even after considering that the exhaled air will necessarily mingle with the air of the room, they will still argue that eight or ten times the amount inhaled, or about one hundred feet per hour, must certainly be enough; and, when told by an inspector that one hundred times the amount inhaled is none too much, they come to the conclusion that he is too much of a crank to advise them in matters of ventilation. And yet a very slight consideration of the subject ought to show them their error.

The chief reason for ascertaining the amount of carbonic acid in the air of a school-room is that the amount of that gas is the surest indication of the amount of other and more dangerous impurities present therein. Out-door air contains about .0004 of its volume of carbonic acid; air as it comes from the lungs contains about .0400 of that gas, and with it a relatively constant quantity of poisonous organic matter. Now, no method of ventilation yet devised will prevent this foul air from the lungs from mingling with the fresh air introduced into the room; so that the problem to be solved is, practically, how much air will it take to dilute this poison sufficiently to render it harmless? The best authorities agree that, when carbonic acid is found in the air of a school-room to the extent of more than .0008 of its volume, it indicates a condition of that air which may render it injurious to the health of the inmates. It is, therefore, only necessary to find out how much air containing .0004 of carbonic acid will have to be mixed with air containing .0400 to reduce the proportion of that gas to .0008 of the entire volume of air, to answer this question.

It is seldom, however, that such perfect circulation can be secured as to evenly dilute the impurities in the air; and a much larger amount of fresh air than that given by this calculation is usually required to reduce the carbonic acid to the above standard in all parts of a room.

Many persons think that the doors and windows of a school-room, if properly handled by the teacher, will afford a sufficient means of ventilation. If this were so, there would be no need of the present law, as all school-houses are provided with doors and windows. But there are many reasons why ventilation by windows will not work well in cold weather. In the first place, no air should be introduced into a room, for the purpose of ventilation, which is colder than the desired average temperature of the room. The air of a school-room is usually kept at 70°. Open a window in such a room when the outside air is at the freezing point. The incoming air at once sinks to the floor, and there it will stay unless forced from its place by more cold air. It is of no use to the children, except to cool their feet. If the room is heated by a stove, the air around the stove is constantly rising toward the ceiling, and the cold air admitted will be drawn along near the floor, and around the persons of the inmates toward the stove, thus accumulating dust and other impurities before it is sent upward, from whence it must again descend, before it can come to the lungs of the children. Why not let it in directly under the stove, in the first place, and warm it before it enters the room?

Aside from not being a good way to ventilate, it is not economical to admit air at a window and then heat it in the manner I have shown, if heated at all. Jacketed stoves are sometimes used to heat and ventilate school-rooms. A good jacketed stove should be capable of heating one

thousand cubic feet of air per minute to a temperature sufficient to keep a well-constructed school-room at  $70^{\circ}$ , with the outside temperature at  $20^{\circ}$ . In such a case, close the inlet for fresh air, take off the jacket from the stove, and then admit one thousand cubic feet of air per minute through an open window, and see if you can keep your room up to  $70^{\circ}$ . It probably costs twice as much to let in air at a window and then *properly* heat and *circulate* it so as to keep the room at an even temperature, as it would to warm the same air before it entered the room. If there is any economy in window ventilation, it comes from the fact that not a quarter enough air is ever admitted in that way.

Many school committees tell us that they have more trouble to keep the air out of a school-room on a cold day than in letting it in, and that enough air comes in around the windows and doors and through the walls and ceiling to secure ventilation. This method of admitting air might be called a sort of insensible ventilation, and the same argument can be used against it as against open windows, except in the matter of exposing the children to drafts. Furthermore, a sufficient quantity of air will not be supplied in this way, and it would be poor economy to attempt it.

In rooms heated by stoves, and unprovided with means of ventilation, except by open windows, and the insensible means before described, there is, besides the inevitable foul air, often a very great difference in temperature in different parts of the room. Observations carefully made of the temperature in such rooms show in some instances a difference of  $48^{\circ}$  between the floor and a point five feet above the floor in the same room, and of  $30^{\circ}$  between the floor and five feet above it on the same vertical line. How can a child be comfortable when the temperature at his head is  $74^{\circ}$  and at his feet  $44^{\circ}$ ? In a properly ventilated room the difference should not be more than  $2^{\circ}$  between the floor and the breathing line, in any part of the room where the children are seated.

If we observe a person in a day when it is cold enough for the vapor of the breath to become visible, we shall see that as the air is expelled from the lungs it is first thrown downward a short distance from the nostrils; it then diffuses and rises slowly, but only to a little way above the head, as its temperature has by that time become so near that of the surrounding air as to check its upward movement. We shall find, where pupils are seated in a school-room, that there is a stratum of air extending for a little distance only below and above the breathing line that is generally more impure than in other parts of the room. To remove this stratum of air and supply its place with fresh air should be the object of ventilation. To do this it is necessary that the movement of air shall be upward or downward, as to move it laterally would be only to carry the expelled breath of one scholar to another. It can be

moved upward in one way by window ventilation, as this lets in cold air, which goes to the bottom of the room and forces the lower stratum of air from its place. This method, as we have seen, is open to many objections. On the other hand, it can be moved downward by admitting pure warm air at the top of the room, and providing for its exit from near the floor as it becomes vitiated. This is the method adopted in all recent successful systems of school-house ventilation. Where air can come in it can go out; and it is obvious that, if we supply the air for ventilation at the top of the room, all that goes out before it gets down to the breathing line is so much air lost, and all its heat is lost with it. There is nothing therefore to be gained, but only a loss in every way, by loose construction of a school building. Build all school-houses as tight and warm as possible. Make all windows double, or put on outside sashes; make all walls and ceilings, and especially ceilings next to cold attics, as impervious to air and as nonconductive of heat as it is practicable to make them, and we shall save enough in fuel to pay for better ventilation than you can ever obtain by the use of doors and windows.

That the outlets for the removal of the vitiated air should be in or near the floor has been clearly shown. They are now generally so located; but the great importance of providing for a strong and uniform current in the exhaust flues *in all kinds of weather* is not, I think, generally appreciated. Unless mechanical power is used, the supply of air through the heating appliances will vary considerably, with the varying temperature of the weather; but if proper means are used the exhaust can be kept very nearly uniform. Many people seem to think that all the coal burned in a ventilating shaft is wasted; whereas, in any well-arranged system of ventilation every pound of coal used in that way is worth more than a pound expended in furnishing a supply of air. A supply of twenty cubic feet per minute for each scholar, with a good exhaust and good circulation, may give much purer air at the breathing line than double that amount with a poor outlet draft and necessarily poor circulation. Whatever means are taken to produce a draft in the extraction flues, they should be such as will be sure to act under all circumstances, and especially in mild weather, when, as I have before stated, the supply will be more uncertain than at any other time.

In conclusion, I would say, have nothing to do with systems of ventilation based upon the theory that carbonic acid settles to the floor in a school-room, or that the vitiated air necessarily rises to the ceiling. Do not place much dependence on what is commonly called "ventilation by natural means." If you want natural ventilation, you must go out of doors to get it. Nature never made a school-house, and cannot be relied upon to heat or ventilate one in cold weather.

Air has the same property of inertia possessed by other substances.

It is a very light and elastic fluid, and moves easily, but there must always be some power to move it, if it moves at all. It will not flow into or out of a room through a brick flue, or any duct or pipe, unless forced to do so. As all school-rooms in this climate have to be artificially warmed for a large portion of the year, if the heating appliances are properly located and arranged they can be relied upon to deliver to the rooms a sufficient quantity of air for ventilation; but heat or mechanical power will invariably have to be used to successfully extract the vitiated air. Cold pipes or flues of any size, or however arranged, or capped with whatever fanciful top or patent ventilator, will not do the work, and all contrivances for extracting the air from a school-room without any expenditure of power will fail to give satisfaction. It would be better not to provide any means, other than windows, than to waste money on such useless devices. Good ventilation will cost money, always; and, although the expense is not so great as is generally supposed, and by recent improved methods it is possible to heat and ventilate a room for but little more than it formerly cost to heat it, it will not do to suppose that any building can be heated and properly ventilated for the same price that it can be heated without ventilation.

All standard authorities are agreed in opinion as to the injurious effects of impure air upon the health, and especially upon the health of children in school-rooms, and this opinion is supported by an immense mass of carefully collected statistics. The results of recent attempts to improve the condition of our school-houses have shown that science and mechanical skill can successfully accomplish the work, and that at an expense which cannot be considered unreasonable.

At the conclusion of the reading of the paper Inspector White gave an illustration of the working of a system of ventilation of school-houses.

Inspector Moore of Massachusetts followed with a paper on the practical ventilation of school buildings:—

MR. PRESIDENT AND MEMBERS OF THE CONVENTION:—During the past year quite extensive improvements have been made in the heating and ventilation of school-houses and public buildings in Massachusetts. Many theories have been shown to be impracticable, and much that has been misleading to the general public has been shown in its true light. The impracticable has given way to the practicable. The different systems of indirect steam, hot water, furnaces, jacketed stoves, and also fans, all have their advocates as well as opponents, and it is not within

the province of the inspector to advocate any special system or plan, but simply to see that results are obtained, and where errors are apparent to point them out, that they may be corrected. The systems of indirect steam or hot water have many good qualities, and most excellent results have been obtained, especially when used in connection with fans run by electric or water motors. In using indirect steam or hot water, the same general principles apply as in some other systems.

The air should be introduced into a cold-air room in the basement, through windows or openings large enough to give an ample supply for the whole building, these windows or openings to be arranged to be easily closed when desirable, or at night when the building is not in use. About three feet in front of the window or opening should be constructed a wind break or partition extending down from the ceiling of the cold-air room to about two-thirds the distance to the floor. This serves to break the force of the wind when blowing into the windows or openings and gives a much more even supply of air to the radiators, which should receive the fresh air directly from the cold-air room. A separate stack of radiators should be provided for each room in the building, of sufficient capacity to heat the room for which\*intended to 70° F. in the coldest weather. The radiators should be made in sections, which should be provided with valves, that part or the whole of the heating surface may be used or shut off, as required by the degree of cold. Three sections seem to be a good number,— one to be used in moderate, two in cold, and the whole three in severe weather. These radiators should be enclosed in metal jackets, and connect directly with the warm-air supply ducts; being sure to have sufficient openings in the jackets to furnish the full amount of air required in the room to be warmed and ventilated. Above the jacket should be a mixing valve in the warm-air duct, connecting directly with the cold-air room. This mixing valve should be connected by a chain or wire with a pulley in the room to be warmed, to enable the teacher or person in charge to regulate the temperature of the incoming air without reducing the volume.

The top of the cold-air room should be sheathed or protected overhead, so that in very cold weather the cold cannot strike up through the floor overhead. If it is desired to save fuel at night or when the building is not occupied, and also to prevent the radiators or pipes from freezing, connection by metallic or brick flues may be made with the exhaust flues, by opening valves in which, and also by closing the openings by which the cold air is admitted to the cold-air room, the air in the building may be again passed through the jacketed radiators. This should only be done, however, when the building is unoccupied, and after time has been allowed for the vitiated air to be removed. The warm fresh air should be taken into the room to be warmed through me-

tallic or brick ducts entering the room not less than eight feet above the floor, and whenever practicable near the centre of the inner or warm side of the room. These inlets should have a net area of four square feet for each room accommodating fifty pupils. Cast-iron wall register faces and valves should not be allowed at these inlets (or either at wall outlets), but a wire netting about one and one-half inch diamond mesh of about one-eighth inch wire, preferably of brass, set in a light iron frame, should be substituted for the cast-iron register faces. The entrance flue or duct should have a curved top, to deflect the air into the room. The best results seem to be obtained when the angle is about  $60^{\circ}$ , as the air is then directed upward and across the room much better than when the angle is about  $45^{\circ}$ . If a brick shaft is used, the lower part of the entrance should have the same curve as the upper part, otherwise there will generally be a portion of the lower part of the inlet, about the distance up that the wall is thick, where there will be very little if any movement of air, and the available area of the inlet is that much reduced. All inlets as well as outlets should be, as far as practicable, straight and perpendicular, and all square angles should be avoided. Where it becomes necessary, as in some cases, to make a turn or change of direction, it should not be a square turn, but should be rounded, or "lobster-backed," as frequently called. The entry or clothing rooms should be provided with a large floor register, available to the pupils in a school-house for warming and drying their feet and clothing in cold and wet weather. The clothing rooms should also be warmed and ventilated, that the wet clothing may be dried, and the odors be properly carried off, instead of passing into and contaminating the air in the building. The vitiated air of the school-rooms should be removed from the bottom of the room, through one or two outlets as near as practicable under the inlet, in the lower story through floor registers and in the upper stories through wall openings at the bottom, covered with wire netting the same as the inlet. Where practicable, it is advisable to provide a separate outlet duct from each room into one central shaft or chamber. These outlets should have a net area of five square feet for a school-room accommodating fifty pupils. The main outlet duct or chamber, if in the top of the building, should be entered by the ducts from each room, and be provided above the entrance with heating radiators, sufficient to cause the necessary draft in all weather; they will require more power in moderate than in cold weather, and should also be provided with a damper or valves to close at night or when the building is not occupied, in cold weather, and when the air is circulating through the building and the cold-air inlet is closed as previously described, also to prevent the freezing of the pipes at night. An auxiliary hot-water heater and expansion tank should also be provided, and supplied with valves which will allow the heating apparatus in the

exhaust chamber or outlet to be used in moderate and warm weather when the main heating apparatus is not in use. Most excellent results are obtained when the duct from each room which leads up to the central chamber is provided with separate heating radiators, these radiators to be in proportion to the amount of power required for each duct. By this arrangement a more equal outflow is obtained in several rooms than where all the ducts enter the central chamber, and the radiators are placed there; one room will not be ventilated at the expense of another, as is sometimes the case under certain conditions when the ducts all enter a central chamber or duct and the power is there applied.

If the outlet ducts are carried down to the bottom of a central shaft, the radiators or heating pipes should be placed a little above the entrance of the ducts into the central shaft. One or more divisions or partings should be provided in the bottom of the central shaft, and extend at least one foot above the top of the duct entrance, the number of divisions or partings depending upon the number of ducts entering the central shaft. The heat should be above these divisions. In case fans are used, much better results are obtained if one is used as a blower for forcing the fresh air in and another for the extraction of the vitiated air. When only one is used as an exhaust, very frequently more air is taken out than is brought in at the inlet, the difference in amount being made up by the air drawn in through the crevices about the doors, windows, ceiling, walls and floor. Where only one fan is used and the air forced into the room, the reverse occurs. With two fans the supply and exhaust can be equalized, and much better results obtained than where only one is used. Where the heating is to be by furnaces, the same remarks would apply so far as they relate to the cold-air room, mixing damper, size and location of inlets and outlets, as in the case of steam or hot water; the cold air to be taken in under the furnace from the cold-air room, a mixing damper for cold air to be provided in the ducts leading to each room and with similar means of managing the same.

The outlets should be in the same relative position to the inlets as in the other case, but the other arrangements would be different. A central brick shaft should be constructed where practicable; the foul air from the lower story carried down to the bottom through metal or brick ducts, and entering the bottom of the sides of the shaft. The shaft should be divided by one or more brick partitions extending up at least one foot above the top of the duct entrance and near the centre of the shaft. The use of this division is to prevent cross drafts from the openings on the opposite sides of the shaft. If only one duct enters the shaft, no partition is required. Above the partition and duct entrance should be placed a coal stove or heater, with the pipe either extending



up to the top of the shaft or into a smoke flue. *A fire should be kept in this stove or heater when the building is occupied, except in very cold weather.* If the heater is placed at the bottom of the shaft, the results will not be as satisfactory as when it is placed above the opening. This is caused by radiation from the stove into the duct, and by not getting the full benefit of the heat. From the rooms in the second story the foul air may be taken directly into the central shaft by placing in the shaft a galvanized-iron deflector. This deflector should be on a curve struck with a radius equal to the height of the opening, and should extend up the central shaft at least two feet above the top of the opening, and be enclosed on the sides to that height. The air that has been taken from the lower rooms and warmed by the heater in the shaft, in passing up by the deflector causes a draft at the opening. By entering the main shaft at the second story, the expense of a flue or duct to take the air down to the bottom of the shaft is avoided, as is also the loss by friction. When the air is taken down to the bottom of the shaft in a duct there is considerable loss of power. The vitiated air, being quite warm, would naturally rise when the outside temperature was low, and heat or power must be applied in the shaft to overcome this resistance. For example, if the foul air is being taken out of the room at a temperature of  $68^{\circ}$  and conveyed from the second story down to the bottom of the shaft, the air in the shaft having been raised in temperature by the heater to  $85^{\circ}$ , there is a difference of but  $17^{\circ}$  that can be relied upon as the working power of the shaft, and this is further reduced by the friction both in the descending duct and the shaft until it reaches the second-story level again. The top of a brick ventilating shaft should never be covered, as is frequently the case; the outlet should be unobstructed. The idea that if it is left open a large amount of rain or snow will accumulate in the bottom of the shaft is erroneous. What falls in a shower or storm is mostly absorbed by the porous brick, and is soon evaporated by the current of warm dry air that passes up the shaft. With metallic stacks the case is different. If not hooded, the water will run down the inside and in some cases accumulate in the bottom of the shaft. Care, however, should be taken to have space enough under the hood or covering to utilize the full area of the shaft. Brick shafts, where practicable to build, are much superior to metal.

In many cases attempts are made to sufficiently heat the air in the shaft by carrying up in the centre a large iron smoke pipe, expecting this will provide sufficient heat for the air in the shaft. This seldom furnishes what is required. Besides being in the centre of the shaft, it occupies the space most valuable for taking out the vitiated air. A smoke flue built in the corner is much better, as it takes up space where the movement of the outgoing air is much less than in the centre. If the central iron smoke pipe were left out, and there were substituted a

brick flue in the corner and a small stove to heat the outgoing air, there would be fewer failures than where the iron pipe is used. Where more than one furnace is used the smoke flues can be with advantage constructed in the corners of the shaft, having but a four-inch wall on the two inner sides of the smoke flues. Care should be taken to have them well built. It is a bad practice to try to heat too many rooms with one furnace, and also to bring too many ducts into one ventilating shaft. Better results are obtained in square shafts than in oblong ones.

While perhaps a better arrangement may be made, yet a brick ventilating shaft for a two-story school-house of four rooms (each room having seating capacity for fifty pupils), constructed in accordance with the following directions, gives most excellent results. The walls to be eight inches thick, and to enclose a shaft fifty-two by sixty inches in the clear, with two twelve-inch smoke flues in opposite corners, each of these smoke flues to have one furnace, which should heat two rooms. Lengthways through the centre of the shaft should be built a four-inch brick partition at least three feet six inches high, and on top of this should be placed a coal stove or heater to cause the draught in the shaft. The smoke pipe of the stove or heater may pass up about eight feet and enter one of the furnace smoke flues, or it may pass up the centre of the shaft to the top. In either case it should be provided with a damper. The shaft should be provided with a tight-fitting iron door through which to tend the stove or heater, and also to allow a person to enter the shaft when desired. If desired, the stove door for tending and feeding the same may be arranged to open from the outside of the shaft. At the bottom of the sides of the shaft should be the openings for the foul air, one on each side of the partition. These openings should each have a net area of five square feet. At the level of the floor of the second-story school-rooms should be two similar openings, with a metallic (preferably galvanized iron or copper) deflector in front of each, this deflector to extend at least two feet above the top of the opening, and to be enclosed on the ends. The curve of the deflector should be with a radius equal to the height of the opening. These openings should be guarded with wire grating. From the lower-story school-rooms the foul air should be taken down through iron registers in the floor (these registers should have a *net area* of five square feet) and carried through brick or metal ducts to the openings in the bottom of the sides of the shaft. By placing the furnaces at opposite ends of the shaft, the warm air can be taken from one furnace for the rooms in the first story and from the other for the rooms in the second story, thereby securing a more even distribution of heat than in the case where a room in each story is supplied by one furnace. This arrangement does not allow one story to rob the other of heat. In using steam heat, one hundred and sixty square feet of indirect radiating surface will supply to a fifty-seat school-room two thousand

cubic feet of fresh air per minute, heated to 80° F. when the thermometer registers 15° above zero; and with proper circulation this is sufficient to give 70° at the breathing line, with not over 2° difference between the outer and inner sides of the room. Two hundred square feet of indirect radiating surface will furnish two thousand cubic feet of air per minute with the thermometer at 10° above zero, and two hundred and fifty square feet will heat a fifty-seat school-room to 70° when the thermometer is at zero.

While this subject may be extended to public buildings, halls and hospitals, which from their construction require heating or ventilating by a more extended system, I have simply confined my remarks to school buildings of moderate size.

There being no discussion, Inspectress Miss O'Rielly of Pennsylvania read the following paper, on "The Efficiency of the Labor Laws in Pennsylvania": —

MR. PRESIDENT AND FELLOW-WORKERS: — The first subject which has been assigned me, namely, the employment of women at work not suitable to their sex, is one that requires grave consideration to determine, inasmuch as the adoption of improved machinery is becoming so general as to make to-day an easy task for woman what only a short period ago would mean death to the vitals of her physical constitution.

My impression is, that it is not so much the use in various occupations for women as the abuse that in most cases affects the physical condition; for instance, in the city of Philadelphia, where the textile industry predominates so largely, many women are, during the fall and winter months, engaged from 6.45 A M until 9 P M, leaving forty-five minutes for noon-day meal and fifteen minutes for supper. The portion of this industry most injurious, to my mind, for women, is in the weaving department, the work being unusually heavy, and oftentimes the looms run at such high speed, and the coloring such as to cause almost a constant change of filling; in these cases women find it impossible to sit at any time during working hours.

In many of our mercantile houses stools are provided, supposed to be for a specific purpose. It frequently occurs to me, however, in going about, that the practice exists in name only, as too frequently has it been proved that the cost of a woman's position has been her desire to use the stools when wearied from over-exertion.

It is said that women are making inroads into the iron and steel industry. This I know only from hearsay, consequently can make no personal comment; having inquired the nature of the work at which they were employed, have been told that it was principally polishing and

operating machines which practically did the heavy work, they giving only the required attention, such as feeding, etc. I concluded that the employment of women in this particular calling would not injure them physically.

The position or rather the condition of our industrial market to-day, so far as women are concerned, is undergoing a very radical change; for inasmuch as women are in the majority in nearly all the States, and their growing tendency is to be more dependent upon their own resources, to accomplish this they must necessarily do manual labor. The employer, being (as is usual) alive to the times, discovers this disposition, and immediately takes advantage by displacing the man and engaging woman labor. This works disastrously in many ways. To me the two most vital, however, are the closing of that occupation to man, and the possibility of its being done at a cost of from two to six dollars difference in the salary paid the man as compared with what the woman may receive per week. This to me is wrong, decidedly wrong; and to you men, members of this august body, do I appeal, as well as to the representatives of all States (irrespective of whether they be the fortunate possessors of a factory law or not) and to the press of this country, to aid in this all-important matter. For, if conditions necessitate that woman must enter into the industrial world as man's competitor, then let it be upon the basic principle of equal pay for equal work, and backed up by that humane law which appeals direct to every man and woman, — "Live and let live."

Woman's opportunities to become acquainted with man's governing powers in this direction have been limited, and to this do I attribute her laxity; but you men of families, educate your wives and your daughters, your brothers, your sisters, and so on, to make a stand, not for sex, but for principle always; contending that, whether masculine or feminine, we are the offspring of the fatherhood of God and the brotherhood of man.

Through legislation can be done many things for bettering woman's condition, but it may not be made an exceptional feature; my belief being that what is good for one is good for all; and, while the factory act in Pennsylvania is purely one for the benefit of women and children, already have we felt and realized its narrow confines. Already the spirit of dissatisfaction has manifested itself, and the result will be, I hope, a revision, when all will be covered with a shield, which I am sorry to say is considered necessary in this the land of enlightened American intelligence. I might go on for an unlimited time, and yet perhaps would have something left to say on this to me wonderfully vital subject, in fact one of the underlying principles of our industrial government; but I feel that I have already transgressed, and will conclude as briefly as possible by giving a synopsis of labor laws, now upon

the statute books of the Key-stone State. I say statutory laws and not practically enforced labor laws, for too frequently does it happen that laws are simply statutory in their every sense. This is of course owing to the disposition manifested by the people for and by whom these laws have been enacted, they being privileged to make such provisions as will warrant a rigid enforcement. This much we have discovered in Pennsylvania, speaking in a general sense, that, if it were not for the factory department, the factory law would soon go by default. If this is to be taken as an object lesson, then in all similar cases should the people see to it that the necessary corps be engaged to protect and execute their interests.

The following constitutes the labor laws now in existence in Pennsylvania:—

The anthracite mine law; the law enabling laborers to collect pay for work stocking saw logs; the constitutional convention law, a law abolishing company stores; a ballot reform law; the semi-monthly law, and the mine inspectors law; each in turn being responsible for the great good in the interest of the people for whom they were established. A compulsory education bill was introduced at the last session of our State Legislature, passed the House and Senate, and then was vetoed by the governor, for reasons best known to himself.

In conclusion let me dare hope that something may have been said in this crudely written paper that will in future development prove helpful in the direction for which it is earnestly intended, namely, the ameliorating and rendering more happy the condition of the largest portion of our united inhabitants, the industrial masses; and when we adjourn to our respective States we will carry with us a determination to labor with a zeal and energy such as is becoming to all lovers of human liberty.

No discussion being had, Inspector Franey of New York read a paper entitled "Have the Factory Laws of New York State, financially, morally or materially benefited its Wage-earners?"

MR. PRESIDENT AND FELLOW-INSPECTORS:—All legislative enactments relating to the inspection of factories and workshops are from the very nature of things remedial in character, and their merits must be decided upon according to the amount of good that has been accomplished through their enforcement. The fact that from year to year the provisions of such laws are made more stringent and their scope enlarged, is of itself an evidence that their enforcement has redounded in some measure to the public good; for it is obvious that, instead of being constantly amended to further extend their effect, had they not

been found useful and advantageous, they would certainly have been stricken from the statute books.

In discussing the factory laws of the State of New York, and investigating the results of their enactment, we are under a disadvantage on account of the comparatively short time which they have been in existence. Passed originally in 1886, when the law simply prohibited the employment of children under thirteen years of age in factories, a number of changes have been made, widening the powers of inspectors and increasing their number; but the law has not been perfected, the number of inspectors is not sufficient, so that an amply satisfactory statement cannot here be made of the full advantages which have accrued to the factory workers of New York by reason of her factory laws. Yet the five years which have just elapsed have shown in many ways that, somewhat crude and insufficient as they are, these laws have accomplished all and even more than was claimed by their advocates, and that, when amended in the light of experience and advancing progress, they will be found of incalculable value as aids to the increase of intelligence, promoters of the health and morals of the community at large, and indirectly if not directly will enhance the material prosperity of all factory workers.

Our law provides that no woman under twenty-one years of age and no youth under eighteen years of age shall labor in any factory or workshop more than a total of sixty hours in one week, or more than ten hours in any one day, if the excess over ten hours is not to be deducted on the last day of the week. While this limitation of the hours of labor for young people does not interfere with the privilege of older persons to work as long as they please, it has had the effect of stopping much of the over-time work usually the accompaniment of the busy seasons in the various branches of industry. The older hands cannot usually continue without their younger co-workers. In some trades this caused the distribution of an opportunity to labor among a greater number of persons, and in other industries the average number of calendar working days was increased, giving steadier employment to those engaged therein, the advantage of which will be readily seen and conceded by all. By thus relieving the glut of unemployed labor to some extent, a steadiness of wages paid was correspondingly ensured, even if no advance of the wage scale was secured; and by encouraging steadier employment the workers were certainly again benefited in that direction, if no other, which prevented a dabbling in the mischief which idle hands are accused of doing. It is not my province to inject into this paper an argument upon the question of reduction of the hours of labor; but I may be permitted to contribute my testimony in the matter, which is to the effect that it is the result of my experience and observation that the law of New York State in prohibiting the minor women and boys under

eighteen from working more than sixty hours has had a decidedly good effect upon all the people of the State, not alone upon the wage-earners, old and young, but, by interposing a legal obstacle to all demands by employers for, or insistance upon, a greater number of hours of toil, it removes what at all times has been a source of friction between capital and labor. I could relate many individual instances of this, were it not that you, whose general experience has been the same as my own, would weary of a detailed recital of such matters.

The law of New York further prohibits any woman under twenty-one years of age and boys under eighteen from being employed after nine o'clock at night or before six o'clock in the morning. This commendable feature of our statutes bears upon its face its own recommendation. Its enactment became necessary because of the long stretches of uninterrupted labor which were often required in a number of industries, sometimes running as high as thirty consecutive hours; and again because some few employers, to show their animosity to the sixty-hour law, and their disregard of its spirit, ran their mills far into the night on some days of the week, and closed them up entirely on other days of the same week, and yet kept within the law. Whatever the evil which it was the design to check, all fair-minded people will concede that it is not for the good of the State that its children and immature workers shall toil all through the hours which nature designed for sleep. The passage of this requirement has had the effect of reducing night work in factories and workshops to a large extent, outside of morning newspaper offices.

We have a law in the State of New York which provides for a half-holiday every Saturday afternoon in the year. While the scope of that law does not require that manufacturing and other business shall cease at twelve o'clock noon on Saturday, still, the closing of banks, exchanges and financial institutions generally at that hour has resulted in similar action on the part of many mercantile and manufacturing houses, especially during three or four of the summer months. I am of the opinion that in a few years the effect of this law will be to cause the stoppage of all ordinary and unnecessary labor, so that our industrial millions will have a much-to-be-desired holiday besides Sunday every week in the year. I mention the existence of this law, not because it is a so-called "factory law," but it is in line with the wishes of the advocates of the factory legislation in this country, to wit, to make the limit of a week's work not more than fifty-four hours. If all the States will pass Saturday half-holiday laws, it will not be long before there will be a material and beneficial reduction of the hours of labor in the whole United States.

Fourteen years is the age at which children may be employed in manufacturing establishments of New York. Every child between

fourteen and sixteen must, before commencing work, place on file in the office of the workshop or factory wherein it is employed a statement of its age, date and place of birth, sworn to by its parent or guardian. This sworn statement to some extent simplifies the work of the inspector, and is a check to the desire of a certain class of unscrupulous parents to place their children at work at an unlawful age. The names of all children under sixteen must be posted in the room where they work, with the age as stated on the age affidavit immediately following. Any older employee can at once see and report to the inspector what may be an infraction of the law. A record book containing the age and other facts must also be kept by the employer, and produced upon the inspector's demand. All children under sixteen employed in manufacturing establishments during the public school terms must be able to read and write simple sentences in the English language. These and other restrictions and requirements have reduced the evil of child labor in the State of New York over fifty per cent. Hundreds of establishments wherein children were formerly employed to a greater or less extent now refuse to employ any, the claim being that there is too much risk and red tape, and the corresponding advantages very few. Of course where the younger children are deprived of employment older persons obtain it. This, it will be conceded, is entirely right and proper. Drudgery and toil by children is foreign to the laws of nature, and should be prohibited by the laws of man. The grown should support the young, and the young should not be called in to deprive the old of the duty or opportunity of supporting the family. The days of childhood should be days of freedom, of play, of mental and physical development. I radically disagree with that class of employers who claim that their mills, workshops or factories are better places for children than the schools; I disagree with those who say that their workrooms are better places for children than the homes of the children; and I disagree with those who claim that it is better for children to labor than to run the streets. I have heard many employers make such assertions, and they have been made with equal vehemence and the same air of high-flown philanthropy by the owners of modern and well-appointed up-country mills and by the employers of the reeking, foul and over-crowded sweat shops of New York City. I care not how or where the child is put to labor and kept in confinement at an allotted task for ten or even less hours a day, it is done in violation of its natural rights. Therefore, beyond the mere fact that our restrictive child-labor laws have tended to reduce competition in the labor market, they have been and always will be of vast direct benefit to the children themselves and to the country at large. Dr. A. Jacobi, the eminent physician and scientist, said in 1882, in his address as president of the New York State Medical Society, that "the almshouse or hospital gener-



ally must receive the men and women who have had to work in factories when they were children." That this is true is noticeable from the fact that, as the child-labor system increased in the United States, or in any particular community, the number of inmates in the poorhouses and hospitals also increased. We have not reaped the full fruits of the abominable system even yet, and it is high time it was checked in the State of New York. The most costly labor of all is child labor. Humanity and the State will pay for it long after the child has passed out of childhood and is competing with its fellow men for a livelihood against its own progeny. Society will never discharge this debt until the generations under which the practice existed have entirely passed away. It has stunted human endeavor and destroyed the brightest days of hundreds of thousands of human lives. The law which abolishes the child-labor evil entirely will date an epoch in the history of the world.

We have also a clause in our law relating to the erection of fire-escapes, and the prevention of various accidents in manufacturing establishments, which has been vigorously enforced and has no doubt resulted in materially diminishing the disasters to humanity in the loss of life and limb, which had been increasing in even greater proportion than the increase in the use of machinery and greater number of establishments justified. I can present no accurate statistics on this subject, however, but I base my belief that the number of accidents and the danger in factories and workshops has decreased upon the fact that the orders to guard exposed machinery, elevators, well-holes and other contrivances around which there is more or less risk have been carried out, as a rule. We have stimulated a precautionary spirit at the same time in the minds of the employers, who take pride in showing our officers the various changes that have been made in directions where no orders have been given, indicating that the former neglect had been thoughtless rather than studied. The makers of all kinds of machinery in New York now guard all gearing, provide loose pulleys and belt shifters, and where possible have added shafts so contrived that they may be loosened to put on or repair belting and tighten it again when the same is in order and ready for running. The law in this respect has generated or revived a regard for the safety of employees which was not felt before. This most important result was accomplished with comparatively little effort, and indicates that a reminder to the employer is all that is necessary to attain a fair degree of personal safety in and around manufactories where machinery is in use. The law requiring accidents to be reported and the liability of suits for damages would not ordinarily accomplish this.

We are also required to insist that separate water-closets shall be provided in sufficient number for each sex, and that these closets shall be at

proper distances from each other. I consider this a most important requirement, and believe that its enforcement has been beneficial in the matter of morals in many instances where, through the ignorance of the persons who planned the buildings or the desire of the owners to economize space, or perhaps from both of these reasons combined, morality and modesty were disregarded. We are also empowered to require that suitable and proper washrooms shall be provided for women, and we always do so in those industries where dirt accumulates upon the person or clothing of the operatives. I have known instances where a better class of female employees was the immediate result of an improvement in the toilet facilities, and I think that nothing about a factory or workshop will give more prompt or greater satisfaction than an adequate improvement in this respect.

So far as justice and the necessities of individual cases require it, we have done considerable prosecuting in the State of New York, and we have been successful in securing convictions in the great majority of cases. Nothing has a greater and more permanent good result than a conviction. It not only has a deterrent effect upon the defendant, but radiates a wholesome influence over a wide range of territory and individuals. It causes respect for the law and a more eager desire to hearken to the suggestions of the inspectors with relation to sanitary, safety, and other desirable changes which are not entirely embraced within the law. Many notable alterations in factory conditions have been made by fair-minded employers who knew or were told that the law did not require them. It is such men as these whom we like to meet, who need no law to coerce fair dealing and force proper surroundings for their employees. Such men are found among those who have but little capital beyond their brains, and who are just starting in business, and they are also found among great and successful mill owners. On the other hand, few of us cannot at a moment's thought recall the names of several great employers of labor who will do nothing that the law requires except at the threat of immediate prosecution, or perhaps not till the successful conclusion of the prosecution itself; who regards the representative of the State as their personal enemy, and their employees as the dust beneath their chariot wheels. It is such employers as these latter, both rich and poor, who have made it necessary to enact factory laws, and who are responsible for more of the ills of society than their small souls can bear punishment for.

Our weekly payment law, which may possibly be enumerated as one of the factory laws, for the reason that the factory inspectors are required to enforce it, has also proved of considerable financial benefit to wage-earners in numerous instances. Nearly all of us here are acquainted with the evils of the store-order or pluck-me system of paying wages. It has generated in its day a vast amount of poverty and distress, and is

one of the most ingenious methods ever devised to keep in slavery the laborer of to-day. The act requiring that wages shall be paid once a week passed the Legislature of New York in 1890, and is now generally observed. From statements made to the inspectors by many persons most immediately concerned, I am justified in saying that the law has further developed a feeling of independence among the wage-earners who were formerly paid but once a month or at greater intervals; it has reduced the amount of intemperance which formerly prevailed where the store-order or monthly-pay system was the rule; it has increased the purchasing power of their money, and has therefore practically increased their scale of wages.

The factory laws of New York and similar statutes are all of recent origin, and the present governor of the State has often advocated their enactment in his various messages to the Legislature, and been greatly instrumental in obtaining friendly action upon them by that body, and he has unhesitatingly signed them all. We are hopeful that the near future will see them materially improved in those directions which experience has shown to be necessary, and that they will be rapidly added to in the progressive spirit which now seems to actuate public sentiment in the Empire State.

It may be that the factory of the future will need no inspection; that no fire can destroy its occupants; that its buildings will be built upon a hygienic basis, and will have ample breathing space and sufficient pure air to satisfy the needs of its employees; that the prattle of the child will not be heard amid the din of its machinery; that the ambulance gong will seldom or never resound at the great doorway, as it stops to gather up the form of the mangled operative; that there will be ample toilet rooms to satisfy the desires of cleanliness and modesty; that the wages will compensate for the labor done; and that the employer will no longer regard his employee as of the earth earthy, and himself as the product of a Creator mayhap his own equal but not his superior. Until these things are come to pass there will be need of factory laws and factory inspectors; and in the mean time let us continue to make it our earnest endeavor to prove, as it can certainly be done, that the statutes we are deputized by the people to enforce are, financially, morally and materially, beneficial to the wage-earners.

No discussion was had on the paper read by Inspector Franey.

Chief Fell informed the convention that the committee on resolutions would report at a later session.

Inspectress Miss O'Rielly of Pennsylvania desired to be

informed of what the governing principles were of the association ; was it not possible to institute some plan that would be binding in having a greater number attend the conventions?

Chief McDonald replied that it would be impossible to make any legislation in that particular as mentioned by Miss O'Rielly.

Inspector Coe of New York moved that a committee of five be appointed on organization.

Inspectress Miss O'Rielly of Pennsylvania moved that the next convention be held at Philadelphia.

Inspector Simmons of Connecticut moved that Hartford, Conn., be the place of next convention.

Inspectress Miss O'Rielly informed the convention that she would guarantee that the Pennsylvania department would make it pleasant for the delegates.

Inspector Simmons advocated Hartford, and said that it would be of benefit to his department. It would do a great deal of good, and he extended a cordial welcome.

Inspector White of Massachusetts thought that the committee on organization might be empowered to select the next place of meeting.

Inspector Blanchard of New York moved that the time for voting for next place of meeting of the association be assigned for ten o'clock Friday morning.

Inspector Coe of New York informed the convention that, on account of press of business, he had not prepared any paper to be read.

Committee on organization was announced as follows : Inspectors Coe of New York, Weinthal of New Jersey, Simmons of Connecticut, Moore of Massachusetts, Davis of Ohio.

Inspector Ellis of Ohio moved that the convention adjourn until Friday morning, at nine o'clock.

ISAAC S. MULLEN,

*Secretary.*

CLEVELAND, Aug. 14, 1891.

Convention called to order by President Wade of Massachusetts at 9.30 A.M.

Chief Fell of New Jersey moved that the naming of place for holding the next convention lie over.

The committee on programme reported several papers yet to be read.

The committee on organization made the following report:—

*To the International Association of Factory Inspectors, in Convention assembled.*

We, your committee on organization, respectfully submit the following as our report:—

We recommend that the officers of this association for the ensuing year be nominated and balloted for in open convention, and that the candidates receiving the majority of the votes cast shall be declared elected.

FRANCIS U. COE,  
W. S. SIMMONS,  
J. A. MOORE,  
E. H. DAVIS,  
J. S. WEINTHALL,  
*Committee.*

Chief Fell of New Jersey moved that the report be received and adopted. Carried.

Inspector Coe of New York moved that the convention proceed to ballot, and that two tellers be appointed to receive, sort and count ballots. Carried.

Inspectors Coe of New York and Simmons of Connecticut were appointed tellers.

Inspector Weinthal of New Jersey nominated Inspector Franey of New York for president. Seconded by Inspector Coe of New York.

Inspector Simmons of Connecticut nominated Chief Wade of Massachusetts for president. Seconded by Inspector Moore of Massachusetts.

Inspectress Miss O'Rielly of Pennsylvania nominated Chief Fell of New Jersey. Chief Fell declined.

After some brief remarks by Chief Wade, Inspectors Franey, Coe and Fell, the convention proceeded to ballot with the following result: whole number of votes cast, 18. Chief Wade had 12, Inspector Franey 6. Chief Wade, receiving the majority of votes cast, was declared elected president for the ensuing year.

Inspector Franey moved that the vote be made unanimous. Carried.

Chief Inspector Fell of New Jersey moved that the election of officers be deferred for five minutes. Carried.

Chief Fell then said that he had been selected by his brother inspectors to perform a very pleasant duty, but he could not, in the short time which had been allotted to him, express the sentiments that he would like to. But it was with great and unbounded pleasure that, in the name of his associates, he took this opportunity to present to Chief Wade of Massachusetts, who had served the convention so faithfully for several years as its president, a gold medal, which he hoped Chief Wade would accept as a memento from those with whom he had affiliated for so many years.

In accepting the medal, Chief Wade replied that, as he had been deemed worthy to be the recipient of so beautiful a memento, words could not express his feelings. He would take it home with him and cherish it with honor and pride. He hoped that the association would live long and be carried on by his predecessors with success. He thanked them one and all.

On motion of Inspector Dyson of Massachusetts, the convention proceeded to ballot for officers of the association.

Inspector Armstrong of Ohio nominated Inspector Franey of New York as first vice-president, and moved that the secretary cast the ballot. Carried.

Secretary cast the ballot, and Inspector Franey of New York was declared elected first vice-president.

Inspector Dyson of Massachusetts moved that the secretary cast a ballot for Chief McDonald of Ohio for second vice-president.

Secretary cast the ballot, and Chief McDonald of Ohio was declared elected second vice-president.

On motion of Inspector Davis of Ohio, secretary cast the ballot for Inspectress Mrs. McEnery of Pennsylvania for third vice-president.

On motion of Inspector Coe of New York, secretary cast the ballot for Inspector Casserly of Minnesota for fourth vice-president.

Chief Fell of New Jersey moved that the president cast a ballot for Inspector Mullen of Massachusetts as secretary-treasurer.

President cast the ballot, and Inspector Mullen of Massachusetts was declared elected secretary-treasurer.

On motion, secretary cast a ballot for Inspector Simmons of Connecticut as assistant secretary.

Inspector Blanchard of New York moved that the convention proceed to name place of next meeting.

Inspectress Miss O'Rielly named Philadelphia, Penn.

Inspector Moore of Massachusetts named Hartford, Conn.

Inspector Blanchard of New York moved that the secretary call the roll and announce the name of place of meeting.

Inspectress Mrs. Ames of Massachusetts thought that Philadelphia would be a very good place for the next meeting.

Inspectress Mrs. McEnery of Pennsylvania said that she would pledge that the delegates would be satisfied.

Inspectress Miss O'Rielly said that there were many good reasons why the convention should be held in Philadelphia.

Inspector Simmons of Connecticut said that to have the convention in Hartford would be of much benefit to his department, and asked the delegates to vote for Hartford.

Inspector Dyson, Chief McDonald and Chief Fell thought that Hartford should be selected. It was a small department, and deserved some consideration.

On the calling of the roll, Philadelphia received eight votes, and Hartford, Conn., received thirteen votes. Hartford, receiving the highest number of votes, was declared the place for the meeting of the next convention.

A suggestion was made that the time for holding the next convention be in September, but on reflection it was decided to let that matter rest with the president.

Chief Wade offered the following resolutions : —

*Resolved*, That the thanks of this convention be and are hereby tendered to Chief McDonald of Ohio and subordinates for courtesies extended, and for the able manner in which the delegates to the convention have been received ; and further

*Resolved*, That, recognizing the progress made in the department of workshops and factories in Ohio under the administration of Chief McDonald of that State, who for nearly three years in that capacity has in every particular carried the laws into execution, and who has by his attention to duty obtained the good-will of all industries throughout Ohio, by his uniform business methods, courtesy and perseverance, solicited the confidence of the people who have been benefited to a great extent by his exertions in the arduous duties that he has had to perform, this convention extend to Chief McDonald their appreciation of the successful results of his administration ; and further

*Resolved*, That a copy of these resolutions be engrossed and forwarded to Chief McDonald of Ohio.

Inspector Blanchard of New York moved that the resolutions be adopted. Carried.

Chief McDonald in a few brief remarks thanked the convention for the resolutions passed.

Inspectress Mrs. McEnery of Pennsylvania read the following paper : —

#### FACTORY LAWS AND WOMEN INSPECTORS.

I feel the promptings of gratitude within me, and I should be recreant to the dictates of my nature, if I failed to acknowledge the honor given by your flattering preference, as expressed in this election of your humble and happy servant to the honorable post to which you have assigned



me,— third vice-president of this great International Association of Factory Inspectors. Especially should I be grateful for it, because this is the first time that it has occurred in our commission. But why not? If it is woman's sphere of labor to be acceptably employed in the great philanthropic field of factory inspection, why not her sphere also to sit in national councils with the worthy members of this body, and, incidentally, preside over it? I need not ask that question, however, in words, since you have answered in silent action which speaks more forcefully than any words can. Again thanking you for the honor you have conferred on me, I want to pass in brief review over the broad field of labor this commission has to occupy and fill.

How long is it since the evening bell of the factory, which is now the vesper bell for the workingman's home and family, used to release, among its train of tired toilers, tender children of both sexes, dwarfed in stature permanently, stunted in intellect for life, with pallid lip, sunken cheek and rayless eye? Was there ever a more pathetic scene than such a throng of little pinched faces presented,—these little, prematurely old men and women, who had been denied life's one happy, careless period, its one play-hour wherein solicitude never comes and sorrow never lingers, where the meal hour banishes care, and tears of evening wash out all the sorrows of the day. I am proud that Pennsylvania has been one among the first of the States in righting this great wrong, and I am glad to be a worker in the agency that sees to it that the laws in regard to child labor, and, hence, incidentally, to the education of children of tender years, are strictly observed. This is woman's sphere; I do not mean to say exclusively so, but when a woman's sympathies are interested and her heart touched, it is a well-known fact that her feet are tireless and her nerves never falter. I believe it will eventually come to be the rule of the inspection commission for the female inspectors to look after the condition and rights of women and children employees, leaving the other heavier duties and matters of detail to the male members. I may not be a seer, but this plan strikes me as being so eminently proper and natural that I cannot see why it should not grow to be adopted in all States. I mean, of course, as our field widens and our commission enlarges proportionately, for otherwise it would mean the appointment of more female deputies now, and a corresponding reduction of the male force. That I would never suggest, and only submit to on the most urgent necessity; therefore I will not even make this suggestion, so that our great and wise legislators can ever hear of it, and I will not agree to have my address of this occasion published until the prophecy is fulfilled. I should not forget how few years it has been since woman had no footing in the field of labor outside of the household, and what an undisguised blessing this factory law is to my own sex, enabling them to earn better wages in fewer hours, and compelling

employers to see that they are courteously treated. I do not mean chivalrously treated, because when a woman goes to work among men she does not expect the courtly deference of the parlor or ball-room, if she is sensible.

In the irrepressible conflict between capital and labor, in which capital is grasping, tyrannical and heartless, and labor, goaded into stubborn resistance, is rash and heedless, the factory law comes as an arbiter armed with all the power of the State, and reconciles the difficulties. It says to the employer: You shall make your tasks lighter, your hours of labor shorter. You shall heed the moral condition, the sanitary condition and the physical safety of your employees of both sexes and all ages, alike and in full. You shall erect fire-escapes, and all reasonable and available safeguards about the machinery necessary to the protection of life and limb of your employees. You shall make their condition ordinarily comfortable. You shall heat, light and ventilate your workrooms according to modern scientific principles. This is, in effect, what the law says to employers; and employees of both sexes, finding their conditions of labor made tolerable, if not always comfortable, have shaken off to a great degree that fever of protest and unrest which characterized them a few years ago. The employer is the gainer in more work, and better, in the fewer hours, than he formerly secured from the longer hours of labor. He realizes that an hour of voluntary work is worth more to him than half a day's enforced labor.

The factory law has accomplished all of this great result, this actual revolution, without undue friction, and it has been owing to the faithful, intelligent and efficient work of the deputies that so great a result has been so effectually accomplished in so short a time. I am sure we are each and all of us proud of our part in the work and in the result of the work, in so far as it depended on our individual or collective efforts to achieve it. To be sure our duties are always arduous, sometimes unpleasant, and never appreciated either by employer or employed. The latter does not stop to think; the former does not like to be coerced into doing things and making extensive improvements in his workrooms for the benefit and protection of his work people. Sometimes he thinks, as his father thought, if he pays them as good wages as they get elsewhere, that is all of his part of the unwritten contract between capital and labor. He "is not his brother's keeper." The risk of life and limb is their own risk. But he changes his opinion when the law says certain reasonable conditions shall be complied with, or he, the employer, becomes responsible, both civilly and criminally, for the loss of either life or limb. The employer, then, who does not care for the lives and comfort of his work people, regards the law as oppressive, and the deputies to whom, under the law, he must allow admittance into his factory, as prying pests. So that I say our labor is a thankless one,

and we have to look for reward to a conviction within ourselves of the good we have been, are, and shall be, instrumental in accomplishing for humanity, except of course, our little monthly warrants on the treasury.

To Pennsylvania, New York and Massachusetts, respectively, belong the glory of inaugurating the employment of female deputies. Now that it is no longer "experiment" and the records show that the female deputies are equally as efficient as their male associates in the new and broad field of labor to which we have been called, it ought to be made plain to other States that the new occupation is one in which woman can efficiently and proficiently work. The records will show that our sex are on the same plane of efficiency as male members of the commission, the averages being the same. But I do not want to say too much for our sex in the committee. The records are here and will speak for us much more effectually than I could. Besides, our male co-workers are naturally so modest that they always disparage their own work, and, as they would not contradict me, no matter what I claimed, I will not claim more than half the truth,—not more than the records will show. I am content to share the credit with them (and the cash too), but especially the pleasure it gives to all good men and women to have been instrumental in the amelioration of the condition of our common humanity. A happy, healthy generation of childhood now growing up towards well-developed maturity in the schools, the parks and playgrounds, will profit by our labors, if they never know their willing benefactors. From the school and playground they will go forth to life's labors and duties prepared for the struggle and doubly armed for the contest, prepared not only to do life's work, but to share life's enjoyments. This thought is not only a reward for past labor, but a spur to future effort.

In conclusion, let me express the hope that our duties and associations in the coming year may be as mutually pleasant and profitable as in the past, and that for all the years we are privileged to work in the good cause we will take our line of labor as it comes to us; if not gleaning in harvest, then seeking the solitary heads that grow among the weeds,—always, always in the field, so that when the great Reaper comes he will find us standing bravely in his path, ready to fall with the ripe swath.

Chief Wade, of Massachusetts, asked to be excused from reading his paper, as time would not permit; it was therefore distributed among the delegates, and ordered to be printed with the proceedings. The following is the paper of Chief Wade:—

## THE DEVELOPMENT OF LABOR LEGISLATION IN MASSACHUSETTS.

LADIES AND GENTLEMEN OF THE CONVENTION :—The first step in any reform is to secure an adequate knowledge of the facts relating to it. If one is merely to enter the field of speculation, theories may be sufficient; but to properly inaugurate any great movement for human improvement we must know just what evils are to be remedied, in other words, what are the facts.

When the inquiries were first made which subsequently ripened into the agitation for reducing the hours of manual labor, it soon became evident that mere assertions carried no weight with thinking persons. It was not enough that there was an urgent, clamorous desire on the part of factory operatives for fewer hours of labor; it might or might not be best for all concerned to accede to such demands. The interest in the subject did not extend very widely, until it could be shown by facts that the reduction asked did not involve disaster to vested interests of the Commonwealth, that the general good required that the prevailing discontent should be allayed, and that the change desired would be an unqualified benefit to capital as well as labor.

The discussion leading up to the earlier labor legislation in Massachusetts was carried on for years without definite results, because it was supposed to be largely based on sentiment. It is true that Great Britain in her factory acts had led the way in such legislation, but the condition of the British operative was much worse than that of the American prototype. It was not, however, until indisputable facts were brought forward to sustain the petitions for a reduction in the hours of labor, that our Legislature gave heed to the growing demand for such a law. There has never been a disposition with us to try experiments in legislation, and for that reason the changes made in our labor laws have been in the direction of improvement and not of destruction. Another significant fact in this connection is that, vast as is the capital employed in manufacturing in Massachusetts, and powerful as such aggregated wealth always is, there has never been an organized or general demand for the repeal of the statute limiting the hours of labor, or dealing in like manner with any subject collateral with it. And I will go further, and assert, without fear of

contradiction, that if from any supposable cause the entire body of labor legislation should be swept from the volume of our Public Statutes, it would be restored substantially as it exists, without any considerable protest or opposition.

Formerly the right of the law-maker to define, regulate and restrict the hours of labor, and the conditions under which it should be employed, was seriously questioned by many well-meaning persons. Granting that such interference might properly extend to the protection of health and life, by suitable provisions to be enforced by legal penalties, there yet remains much jealousy concerning the alleged control by the State of the right of labor to make its own contracts.

The constitution of Massachusetts declares that "Government is instituted for the common good, for the protection, safety, prosperity and happiness of the people; and not for the profit, honor or private interest of any one man, family or class of men." And the constitution granted to the Legislature full power and authority from time to time to make, ordain and establish all manner of wholesome and reasonable orders, laws, statutes and ordinances, directions and instructions, either with penalties or without (so that the same be not repugnant or contrary to this constitution), as they shall judge to be for the good and welfare of this Commonwealth and for the government and ordering thereof, and for the subjects of the same and for the necessary support and defence of the government thereof. The authority of the Legislature, exercised in behalf of the laboring people of the Commonwealth, is thus securely intrenched in our constitution; and, when that authority has been properly invoked for unselfish ends, its appeals have always been heard with respect and obedience.

It seems strange at this late day to remind you that the exercise of legislative power in behalf of the operative classes was formerly denounced as despotic and unconstitutional. It was regarded as an unwarrantable attempt of the State to control the contracts of labor which her citizens might desire to make. But this mistaken notion was soon abandoned. It is now twenty years since what is called our ten-hour law passed one branch of our Legislature only to be rejected by the other, and this was its fate for several successive years. Prior to that early effort, say forty years ago, the

customary hours of labor of our large manufacturing establishments were twelve to fourteen hours each day. The time was soon reduced to eleven hours by the voluntary action of the manufacturers. Within twenty years past the usual time in manufacturing establishments throughout the State was eleven hours a day, or sixty-six hours a week. And this was the case down to the period when the law was passed limiting the hours of labor to ten hours a day.

The original law regulating the hours of labor in manufacturing establishments was enacted in 1874. On the first day of October of that year the law went into effect. This law was then known and so called as the "ten-hour law." All such establishments as were subject to the provisions of the same thereupon so regulated their time-tables as to conform to the requirements of the statute, and Massachusetts had on her statute books an enactment which defined the limitations of labor within the Commonwealth.

In 1877, three years later, the labor law was supplemented by another act of the Legislature, which, in the breadth and scope of its provisions, included many valuable and beneficent features. This was the act relating to the inspection of factories and public buildings. Each of the many subjects of legislation comprehended in this law has, since the time of its passage, by reason of subsequent amendments to the original act, acquired, in itself, special importance. The act of 1877, which went into effect on the first day of July of that year, provided for the guarding of belting, shafting, gearing and drums in all manufacturing establishments when any such were so located as to be dangerous to employees while engaged in their ordinary duties; the cleaning of machinery when in motion was by that act prohibited, and all such establishments were required to be well ventilated and kept in a cleanly state. The act also provided for the protection of openings to all elevator wells, hatchways and hoistways, on every floor of such establishments, by requiring good and sufficient trap-doors or self-closing hatches at such openings; and it further provided that some safety catch should be furnished on each elevator car. Together with these important requirements, this act provided for good and sufficient means of egress, not only from such manufacturing establishments, but from every church, school-house, hall, theatre, hotel and every other building used for public

assemblies. It provided that one or more of the members of the State police force should be detailed to act as inspectors of factories and public buildings; and that small contingent, beginning then to enforce the provisions of the inspection laws, was the nucleus of an organization which has, from time to time, as necessity required, increased in number, and which constitutes to-day the inspection department of the Massachusetts district police.

As the operation of the act of 1877 and the enforcement of its several provisions developed beneficent results, further acts as amendments thereto were suggested, and in the succeeding years were enacted into law. What were embodied into one act by the passage of this law have now become, each in itself, a subject of so much special importance that in almost every case each of these subjects has called for several legislative acts; so that to-day we have on our statute books a collection of laws relating to the employment of labor, and the inspection of factories, workshops and public buildings, added to which are the ever-important educational laws, all of which, if arranged in their order together, would make a volume respectably large in itself.

Ever since the passage of the law of 1874, regulating the hours of labor in manufacturing establishments, the question of labor has received more or less consideration from each succeeding Legislature, and a number of other laws relating to the same subject have been placed upon the statute books.

In 1880, by chapter 194 of the Acts and Resolves of that year, the original law of 1874 was amended by making provision that every firm or corporation employing minors under the age of eighteen years, or women in any manufacturing establishment, shall post a printed notice in every room where such help is employed, which notice shall state the number of hours' work required of such persons on each day of the week; and the employment of any such persons for a longer time in any one day than the time stated in such notice shall be deemed a violation of this act. This law relating to the posting of notices was amended in 1886, chapter 90, Acts and Resolves of that year, which provided that the form of such notice shall be furnished by the chief of the district police and shall be approved by the attorney-general. This was further amended by chapter 280, Acts of 1887, which

also regulates any over-time employment resulting from the stoppage of machinery.

The Acts of 1882, chapter 150, provide that every person or corporation employing females in any manufacturing, mechanical or mercantile establishment shall provide suitable seats for every female so employed, and permit the use of such seats when the said females are not engaged in the active duties for which they are employed.

By chapter 275, Acts of 1884, it is provided that no minor under eighteen years of age shall be employed in any mercantile establishment more than sixty hours in any one week.

Chapter 87 of the Acts of 1886 provides for the weekly payment to operatives of the wages earned by them when employed by any corporation in the Commonwealth; and this act has been amended twice since its original passage, namely, by chapter 399, Acts of 1887, and by chapter 239, Acts of 1890.

By the Acts of 1887, chapter 215, provision was made to secure proper and uniform meal times for children, young persons and women employed in workshops.

The Acts of 1890, chapter 183, prohibit the employment of women and minors by any corporation or manufacturing establishment between the hours of ten o'clock at night and six o'clock in the morning. Those several acts which I have enumerated relate to the employment of labor.

Chapter 208 of the Acts of 1882 provides that all elevator cabs or cars, whether used for freight or passengers, shall be provided with some suitable mechanical device, to be approved by the inspectors, whereby the cab or car will be securely held in the event of accident to the shipper-rope or hoisting machinery, or from any similar cause.

Chapter 173, Acts of 1883, empowers the inspectors of factories and public buildings to placard all elevators which, in their judgment, are unsafe, and to prohibit the use of such elevators while they remain in such unsafe condition.

By the provisions of chapter 90 of the Acts of 1890, no person, firm or corporation shall employ or permit any person under the age of fifteen years to have the care, custody, management or operation of any elevator, or shall employ or permit any person under eighteen years of age to have the care, custody, manage-



ment or operation of any elevator running at a speed of over two hundred feet a minute.

The provisions of chapter 173, Acts of 1886, require that, in every manufacturing establishment where the machinery used is propelled by steam, communication shall be provided between each room where such machinery is placed and the room where the engineer is stationed, by means of speaking tubes, electric bells or appliances that may control the motive power, or such other means as shall be satisfactory to the inspectors of factories, whenever, in the opinion of the inspectors, such communication is necessary.

Chapter 260, Acts of 1886, provides that all manufacturers and manufacturing establishments shall forthwith send to the chief of the Massachusetts district police a written notice of any accident to any employee while at work in any factory or manufacturing establishment operated by them, whenever the accident results in the death of said employee, or causes injury to such an extent as to prevent the person injured from returning to work within four days after the occurrence of the accident. This act was amended by Chapter 83, Acts of 1890, which provides that the proprietors of all mercantile establishments shall also report accidents occurring within such establishments under the same circumstances and in the same manner.

By chapter 121, Acts of 1887, every child under the age of fourteen years is prohibited from cleaning any part of the machinery in any factory while the machinery is in motion.

I will now proceed to enumerate as briefly as possible the several acts of legislation relating to the inspection of buildings and providing for sufficient ways of egress therefrom, and for the sanitary condition and the ventilation of such buildings. In 1880, by chapter 197 of the Acts of that year, provision was made for better means of egress from all rooms in factories above the second story in the building. The Acts of 1881, chapter 137, prohibited the use of any explosive or inflammable compound in any factory, in such place or manner as to obstruct or render hazardous the egress of operatives in case of fire.

Chapter 52, Acts of 1884, prohibits the locking of the doors of buildings wherein operatives are employed, during the hours of labor, so as to prevent free egress.

By chapter 103, Acts of 1887, every factory in which five or more persons are employed, and every factory, workshop, mercantile or other establishment or office in which two or more children, young persons or women are employed, shall be kept in a cleanly state and free from effluvia arising from any drain, privy or other source, and shall be provided, with reasonable access, with a sufficient number of proper water-closets, earth-closets or privies; and when two or more of each sex are employed in the same establishment there shall be separate and distinct water-closets, earth-closets or privies provided for the use of each sex, and plainly so designated. This act was amended by chapter 305, Acts of 1888. In the Acts of the same year (1887), chapter 173, provision was made for the proper ventilation of factories and workshops. Chapter 149, Acts of 1888, is an act which requires proper sanitary provisions and proper ventilation in public buildings and school-houses.

Chapter 316 of the Acts of the same year is an act to regulate the erection and construction of any building designed to be used, in whole or in part, as a public building, public or private institution, school-house, church, theatre, public hall, place of assemblage or place of public resort; or any building more than two stories in height, designed to be used above the second story, in whole or in part, as a factory, workshop, mercantile or other establishment, and having accommodations for ten or more employees above said story; or any building more than two stories in height, designed to be used above the second story, in whole or in part, as a hotel, family hotel, apartment house, boarding-house, lodging-house or tenement-house, and having ten or more rooms above said story. This act contains a clause making it necessary, before any such building above described is erected, to deposit with the inspector of factories and public buildings a copy of the plans and certain portions of the specifications for his examination; and, if endorsed by him and approved by the chief of the district police, then a certificate in accordance with the provisions of this act will be issued.

Chapter 426 of the Acts of the same year is another very important and comprehensive enactment. It is also an act in relation to ways of egress and means of escape from fire in buildings already constructed at the time of the passage of this act, and

being the same class or classes of buildings described in chapter 316 before mentioned. Besides providing for sufficient ways of egress in all these buildings, it provides that all such ways shall be kept at all times free from obstructions; that all windows and doors shall open outwardly, if the inspector so directs in writing; that no portable seats shall be allowed in any aisles or passageways; and in every theatre the proscenium or curtain opening shall have a fire-resisting curtain of some incombustible material, to be properly constructed, and shall be operated by proper mechanism; and a certificate of the inspector shall be conclusive evidence of a compliance with such requirements.

Chapter 399 of the Acts of the same year provides for the inspection in certain cases of buildings and other structures alleged to be unsafe or dangerous, such inspection to be made by any member of the inspection department of the district police, when called upon by the mayor and aldermen of any city except the city of Boston, or by the selectmen of a town; and such inspector shall cause said structure either to be removed or placed in a safe condition, as the circumstances in any case require.

Hotels have been made the subject of special legislation by the following acts:—

By the Acts of 1883, chapter 251, every keeper of a hotel, boarding or lodging house containing one hundred or more rooms, and being four or more stories high, shall have on duty during the night-time two competent watchmen; and every keeper of any such hotel or house containing fifty or more but less than one hundred rooms, shall have one competent watchman on duty in such hotel or house. It also provides for the proper lighting of such hotels or houses at night, and for a red light to be kept at the head and foot of each stairway during the night; and one or more alarms or gongs capable of being heard throughout the house shall always remain ready for use and easy of access, to give notice in case of fire; and a notice shall be posted in each sleeping-room descriptive of such means of escape.

Chapter 223, Acts of 1884, provides that all hotels, boarding and lodging houses subject to the provisions of chapter 251, Acts of 1883, adopting a system of electric watch clocks that shall register at the office the movements of a watchman throughout the house, or adopting in the rooms any system of thermostats or fire-

alarm bells approved by the inspectors of factories and public buildings, shall be exempt from maintaining more than one watchman in addition to the regular night clerk and porters.

Chapter 307, Acts of 1890, provides that every proprietor, owner, lessee or manager of a hotel in the Commonwealth shall, on or before the first day of January, 1891, place or cause to be placed in every room used as a lodging-room a knotted rope or other better appliance for use as a fire-escape in such room, such rope or other appliance to be securely fastened at one end of it by an iron hook or eye, to be securely screwed into one of the joists or timbers next adjoining the frame of a window; and there shall be plain directions how to use the rope or other appliance, printed and posted within six inches of the hook or eye to which the rope is fastened. It also provides that the local inspector of a city or town, or, if there be no such officer, then the chief engineer or the officer performing the duties of chief engineer of the fire department of every city or town, shall, during the month of May in each year, inspect every room of every hotel in such city or town, and report the condition of the same with respect to this law to the chief of the district police.

I wish now to refer to the several acts which have been passed by the Legislature of Massachusetts in relation to the employment of children and the attendance of children in the schools. Education is a subject which has always received in this State the most earnest and careful consideration. The people have at all times manifested the liveliest interest in the welfare of the common schools, and what is true of them in this regard is alike verified by the acts of their representatives in the General Court. Realizing in its full importance the fact that education is most essential in the maintenance of the institutions under which we live, and in affording to the citizen a knowledge of what both his rights and duties are, the subject always has had and will have a foremost place in matters of legislation. Therefore, recognizing this, many and beneficent laws, regulating the time of school attendance and fixing the period of compulsory education, have found their places on the statute books. The tendency has always been in the direction of extending the limit, or, in other words, raising the school age, under which no child should be employed at labor, and making such period the time for compulsory school attendance.

By chapter 52, Acts of 1876, no child under ten years of age could be employed in any manufacturing, mechanical or mercantile establishment. In 1883, by chapter 224 of the Acts of that year, the limit was extended or raised by providing that no child under twelve years of age should be employed during the hours in which the public schools were in session in the city or town in which he resided. Again, in 1885, by chapter 222, Acts of that year, another change was made, which provided that no child under twelve years of age should be employed at any time during the days in which the public schools were in session. But in 1888, by chapter 348, Acts of that year, these several statutes were repealed, and provision was made that no child under thirteen years of age shall be employed at any time in any factory, workshop or mercantile establishment, thereby raising the age limit, without any qualification, to thirteen years.

The other acts of legislation touching this subject contain in them provisions for the attendance of children who have reached the age limit a certain number of weeks during each year, and requiring in each case a certificate showing the number of weeks of such attendance, or showing the age, birthplace and other facts required, as the case may be, relative to such child. In all these enactments are to be found wise and salutary provisions, and great good has resulted therefrom. It will be sufficient at this time for me to enumerate these laws, giving their places on the statute books: chapter 47 of the Public Statutes, as amended by chapter 464, Acts of 1889, and chapter 384, Acts of 1890; chapter 433, Acts of 1887, as amended by chapter 48, Acts of 1890; chapter 299, Acts of 1890; chapter 361, Acts of 1891. This latter act provides for raising the compulsory school age to fifteen years in cities and towns where opportunity is given for industrial education. Chapter 384, Acts of 1890, provides for thirty weeks' school attendance during the year in such cases where twenty such weeks were before required.

In addition to the laws which I have here mentioned, there are two other acts which were passed by the General Court at the session this year. One was chapter 125 of the Acts of the year, which prohibits the imposition of fines or deductions of wages of employees engaged at weaving. The other act is chapter 357, which prohibits the manufacture and sale of clothing made in un-

healthy places. This latter act was passed after a thorough investigation, which was authorized, was made as to the manner in which clothing was manufactured in tenement-houses; and the law is intended to remove the evils which existed under this old system, by regulating such business and making it subject to examination by the State inspectors, two additional members being appointed to enforce its provisions.

Certainly these facts disclose the great changes which have been effected within a few years in this class of legislation. You will remember, in my opening address before this convention, I cited the most recent additions to our labor laws. I quote one in relation to the hours of labor. It provides that "nine hours shall constitute a day's work for all laborers, workmen and mechanics now employed by or on behalf of the Commonwealth of Massachusetts, or any county, city or town therein; and all acts and parts of acts inconsistent with this act are hereby repealed." The scope of this act and its importance as a standard illustrate the remarkable advance that has been made in our State since the question of limiting the hours of labor was first brought to the attention of our Legislature. And the same is true with regard to the laws limiting the age at which children may be employed in our manufacturing, mechanical and mercantile establishments, and prohibiting their employment in the absence of certain specified educational qualifications.

Probably in no department of our legislation affecting the rights of our manual laborers has there been greater advancement than that of sanitary inspection. Popular science has long since made familiar the facts relative to the dangers of bad drainage, insufficient ventilation, and the like sources of disease and death; but not until recently were the facts brought to the attention of our Legislature in connection with our school-houses and other public buildings used as places of public entertainment, instruction, resort or assemblage. The heating and alleged ventilation of such buildings until a few years ago was of the simplest and most imperfect character. In the winter season especially it was alternately freezing or roasting. No man can fitly describe the actual condition of our school-houses, for instance, in which the foul air, bearing disease-breeding germs, laden with infectious and dangerous gases, filled every crowded room. Could even a merciful

providence, without disregarding its own immutable laws, avert the dreadful consequences of such thoughtlessness or ignorance? The inspections made by our inspectors revealed the imperative necessity of immediate action. No more intelligent community exists upon the face of the earth than those among whom the state of things I have referred to was found. But it is not so easy to move a community to action as an individual. Indifference, selfishness, incredulity and a general unwillingness to believe that the evils complained of were actually as bad as had been represented, were among the obstacles to overcome. But those difficulties were at last surmounted, and we have stringent laws of sanitation, enforcement of which is cheerfully submitted to, and the results of which have already been most beneficial.

It has been the rule of our department to obtain the best scientific information that is available; to make the most thorough tests of the various systems of ventilation brought to our notice; to institute the most searching investigation into the condition of our school-houses and public buildings throughout our Commonwealth.

Before the establishment of our State Board of Health the suppression of nuisances was intrusted to the local boards of health. These bodies were not always composed of the most competent men; occasionally, but not uniformly, a physician was chosen to membership in such board. But under the most favorable conditions those local boards were unable or unwilling to cope with the evils which affected their respective neighborhoods. When the fact became sufficiently manifest, the Legislature established a State board, giving it the amplest power of summary and decisive action, and thus the serious problems were finally solved. No longer are public nuisances allowed to exist in Massachusetts because some local authority lacks the wisdom or the courage to suppress them; local and political interests are not permitted to override the public good; the health and comfort of the community are paramount considerations; and what has been done in respect to public nuisances is an indication of the policy adopted in the inspection laws.

Looking back over a period of twelve years, I am able to state with confidence that progress has also been made in the matter of compulsory education of our children employed in manufacturing, mechanical and mercantile establishments. I have no time to do

more than state this among other facts. For twelve consecutive years it has been my duty to report to our chief executive magistrate, and to offer such suggestions and recommendations as seemed to be called for by experience. When, in 1879, I took charge of our district police, it was but a skeleton of what it now is. Our duties have been greatly increased by successive Legislatures. Trained and capable men as my deputies are, they, at least, will agree with me that the history and record of our force are in themselves a most striking illustration of the development in Massachusetts of protection for the welfare of our laboring people.

One of the most gratifying signs of the times is the establishment of an industrial institution which promises to supersede trades unions. It does the work of these unions, and also occupies a broader field of co-operation between employers and employees. I quote from an article published in the "Boston Journal" of July 22, 1891, as follows:—

#### A SUBSTITUTE FOR TRADES UNIONS.

An industrial institution which has taken the place of trades unions in various parts of Europe, and which is attracting wide attention for its efficiency, is known as the "Workmen's Committee," developed spontaneously through the co-operation of employers and workmen, and now enjoying the approval of municipal authorities. The origin of the movement is to be found in such bodies as "Factory Counsellors," "Oldest Colleagues," "Workmen's Committees," which have been in existence during the last twenty-five years, created by the manufacturers of Germany as a medium between employer and employee. Members were elected by their comrades, and the workmen's committees gradually came to exercise the functions of disciplinary authorities. Being composed of foremen or inspectors, they were well acquainted with technical matters, and developed a feeling of mutual confidence and interest between employer and employed. Whenever a committee is formed now it receives complaints, wishes, opinions and new ideas concerning work; it explains the views and reasons of the employer, and seeks to create an understanding between both parties by public speeches and answers. Meetings for regular discussion brings managers and working people closer together. The technical management of the production and commercial management of purchases and sales are, of course, decided by the proprietor. Questions of wages and length of working time are rarely discussed by these committees. Some of the best committee work is extended to the private life of the



working people, and consists of the encouragement of thrift and the development of the ambition and honor of all the employees. All reports agree in praising the new economical institution. A system created of workmen receives their confidence, and, stimulating friendly communication with employers, establishes a mutual support which cannot exist when the employer enters only into business relations with his employees.

Certainly it cannot be out of place for such a body as ours to rejoice at every step of progress which secures intelligent appreciation and support of our work as factory inspectors ; and it seems to me that an organization established for the purposes above mentioned is a near approach to the solution of the industrial problem which continually confronts us in the great contest between capital and labor.

The following letter, from Chief Inspector Geo. W. Ford of Tennessee, was read and ordered to be printed with the proceedings of the convention.

FACTORY INSPECTOR'S OFFICE, NASHVILLE, TENN., Aug. 10, 1891.

JOHN FRANEY, *Vice-President International Factory Inspector's Association, Cleveland, Ohio.*

I was in hopes I could attend the session of the factory inspectors, to be held in Cleveland this week, but the recent trouble among the coal miners in this State has caused me to give up my trip to Cleveland. I have to start in the morning to inspect the coal mines where the trouble was, and after the inspection is over I may have to apply to the court for an injunction to prohibit the working of the mine until the operators comply with the laws on the subject of running mines, so that you can see I have as much as I can attend to here at home. I regret it very much, as I had anticipated a mentally profitable and pleasant time at Cleveland, but duty before pleasure.

Please convey my regrets to all friends at the convention, and I will try to be at the next session, if possible. Wishing all a pleasant time and a profitable session,

I remain respectfully yours,

GEORGE W. FORD,  
*Chief Inspector.*

Secretary asked what number of the proceedings should be printed. On motion, 1,000 were ordered: Massachusetts, 200; New York, 100; Pennsylvania, 200; Connecticut, 50; Minnesota, 50; Ohio, 150; New Jersey, 100; Province of Quebec, 25.

Inspector Davis of Ohio offered the following motion: that a committee of one from each State represented in this association be appointed to draft a constitution for the government of this association, and to report at the next annual gathering. Carried. Committee: McDonald of Ohio, Simmons of Connecticut, O'Rielly of Pennsylvania, Coe of New York, Mullen of Massachusetts, Casserly of Minnesota, and Fell of New Jersey.

Inspector Davis of Ohio offered the following resolution:—

*Resolved*, That we recommend to the various legislatures and parliaments in the States and Provinces of North America, the enactment of laws requiring the examination of engineers of stationary engines and tenders of steam boilers, by competent officers.

Carried.

Inspectress Miss O'Rielly of Pennsylvania offered the following resolutions, which were adopted:—

*Resolved*, That, in recognition of the more than generous as well as kindly treatment shown the International Association of Factory Inspectors by the Press of Cleveland, we, the constituents of said body, tender our unanimous as well as grateful thanks for privileges enjoyed, realizing the great good that it will do in advancing the cause for which we are assembled; and further

*Resolved*, That this convention tender its grateful appreciation to the acting mayor for his address of welcome; also to the honorable members of the city council for the kindly hospitality manifest in the privilege of using their council chamber during our deliberations in this their beautiful city; also to the manager of the Jacobs Theatre, and to the auxiliary fire department, for pains taken to entertain the delegates; and, last but not least, to the inspection

department of Ohio, for their efforts to make comfortable and care for the wants of the visiting delegates.

The committee on resolutions presented the following :—

The International Association of Factory Inspectors of North America, in its fifth annual convention assembled, view with extreme gratification and hearty approval the progress made by the respective States here represented in the enactment of factory or industrial laws which, while imposing additional duties on us as inspectors, have afforded greater latitude for operation, and provided for the more effectual prosecution of the beneficent provisions of such legislation. We recognize, in connection with our labors, a growing disposition among employers to conform to the spirit and intention of the factory laws, and the commendable humane effort on the part of so many to provide for the physical comfort and the mental improvement of their employees beyond what the State requires of them. We are justly proud of the work accomplished through factory legislation for the amelioration of the condition of working people, and the influences wielded thereby for promoting the best interests of society. In consideration of what has been achieved in that direction, we commend to the attention of the people of the United States and Canada the necessity of adopting a system of factory inspection in every State and Province, —and to the States and Provinces here represented we suggest the wisdom of additional legislation, as follows :—

#### CHILD LABOR.

*Resolved*, That stringent laws be enacted governing the employment of children in the various States, prohibiting the employment of children under fourteen years of age, and especially to abolish the employment of children under sixteen years of age at any occupation whereby their lives and limbs may be endangered, their health injured, or whereby their morals may be depraved in such employment.

#### COMPULSORY EDUCATION.

We advocate laws that will discriminate compulsory education, coupled with a thorough system of manual training in every community, for all children between eight and fourteen years, and

providing for the maintenance of indigent orphans and impoverished children, whose earnings might be needed to support themselves or aged and infirm parents, by the State.

#### HOURS OF LABOR FOR WOMEN AND CHILDREN.

We recommend legislation regulating the hours of labor of women and children under the ages of eighteen years, restricting such employment so as not to exceed ten hours per day, aggregating not to exceed fifty hours per week, thus providing for a weekly Saturday half-holiday; and we are decidedly opposed to the employment of women and children under eighteen years between the hours of nine P.M. and six A.M.

#### MACHINERY AND BUILDINGS WHERE PEOPLE ARE EMPLOYED.

We recommend the passage of the most stringent laws providing for the proper guarding of machinery, and establishing a thorough inspection of all buildings wherein people are employed. Recognizing the dangers connected with the operation of elevators, hoistways, etc., we believe it necessary for the public safety that laws be enacted governing the construction of elevators to the extent of insuring perfect construction and their safe operation, and providing that the inspectors shall have power to condemn their use when on inspection they have been found to be deranged or defective, and requiring that all well-holes or elevator shafts shall be surrounded with a brick wall from the basement to the roof, and that no elevator should be constructed when not supplied with two or more lifting ropes, and provided with an efficient safety-catch operated by means of a counterpoise weight.

#### SANITATION, ETC.

We recommend laws requiring a perfect hygienic condition in all industrial establishments and public buildings, and we insist on separate and distinct toilet and dressing rooms where women are employed.

#### PUBLIC BUILDINGS.

We recommend the enactment of laws in each State prohibiting the erection of dangerous buildings for public use, requiring a

thorough inspection of all public buildings, and providing that the plans and specifications for their erection shall be submitted to some competent State authority for approval before being executed.

JOHN FRANEY (New York),  
F. J. CASSERLY (Minnesota),  
Mrs. F. B. AMES (Massachusetts),  
L. T. FELL (New Jersey),  
WM. Z. McDONALD (Ohio),  
*Committee.*

After a brief discussion, the resolutions were unanimously adopted.

Inspectress Miss O'Rielly of Pennsylvania moved that, in consideration of the faithful manner in which Secretary Mullen had performed his duties, the convention recognize the fact by a standing vote. Carried.

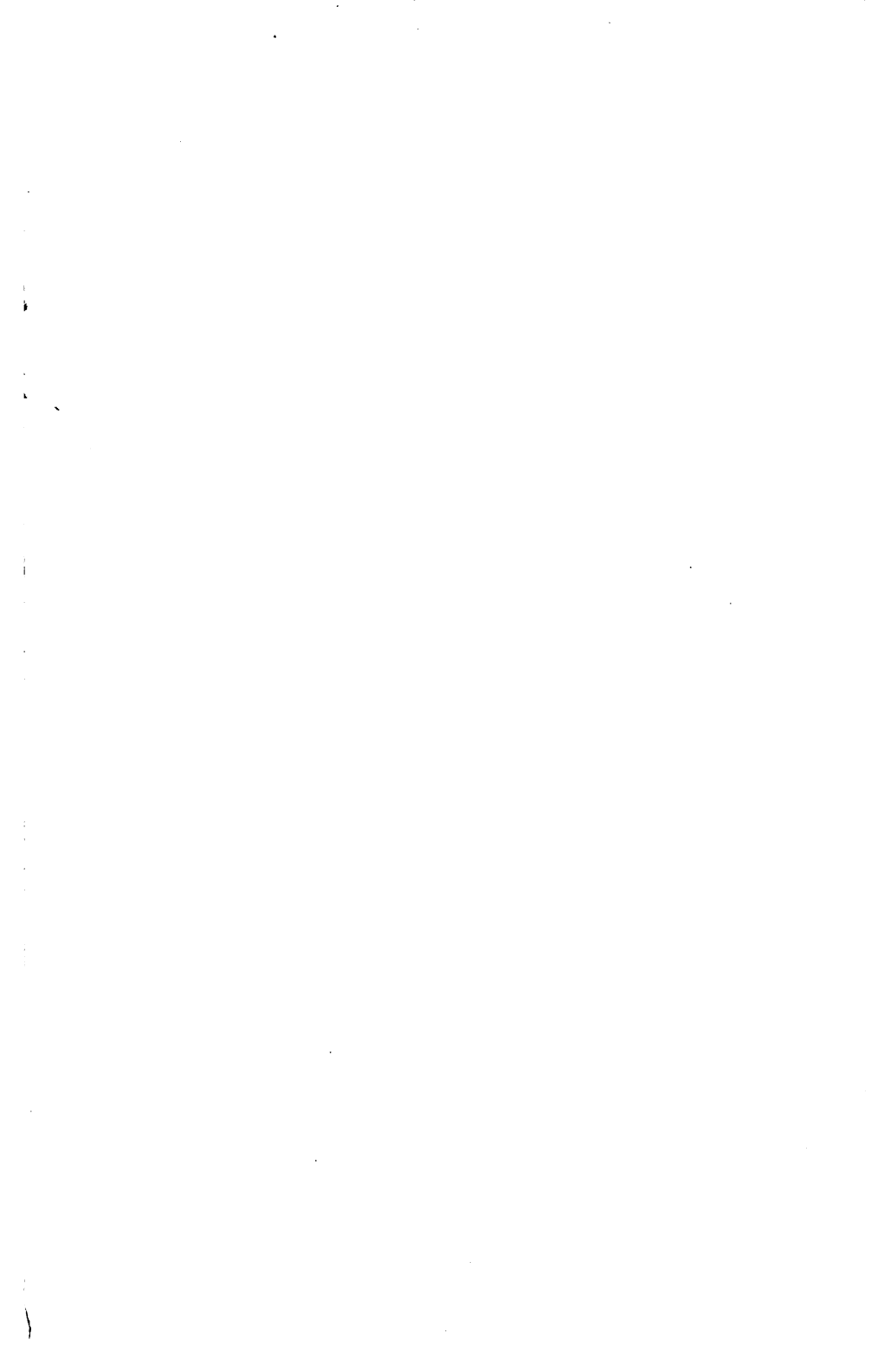
There being no further business, the convention, at 12.30 P.M., adjourned, *sine die*.

<sup>14</sup>  
RUFUS R. WADE,  
*President.*

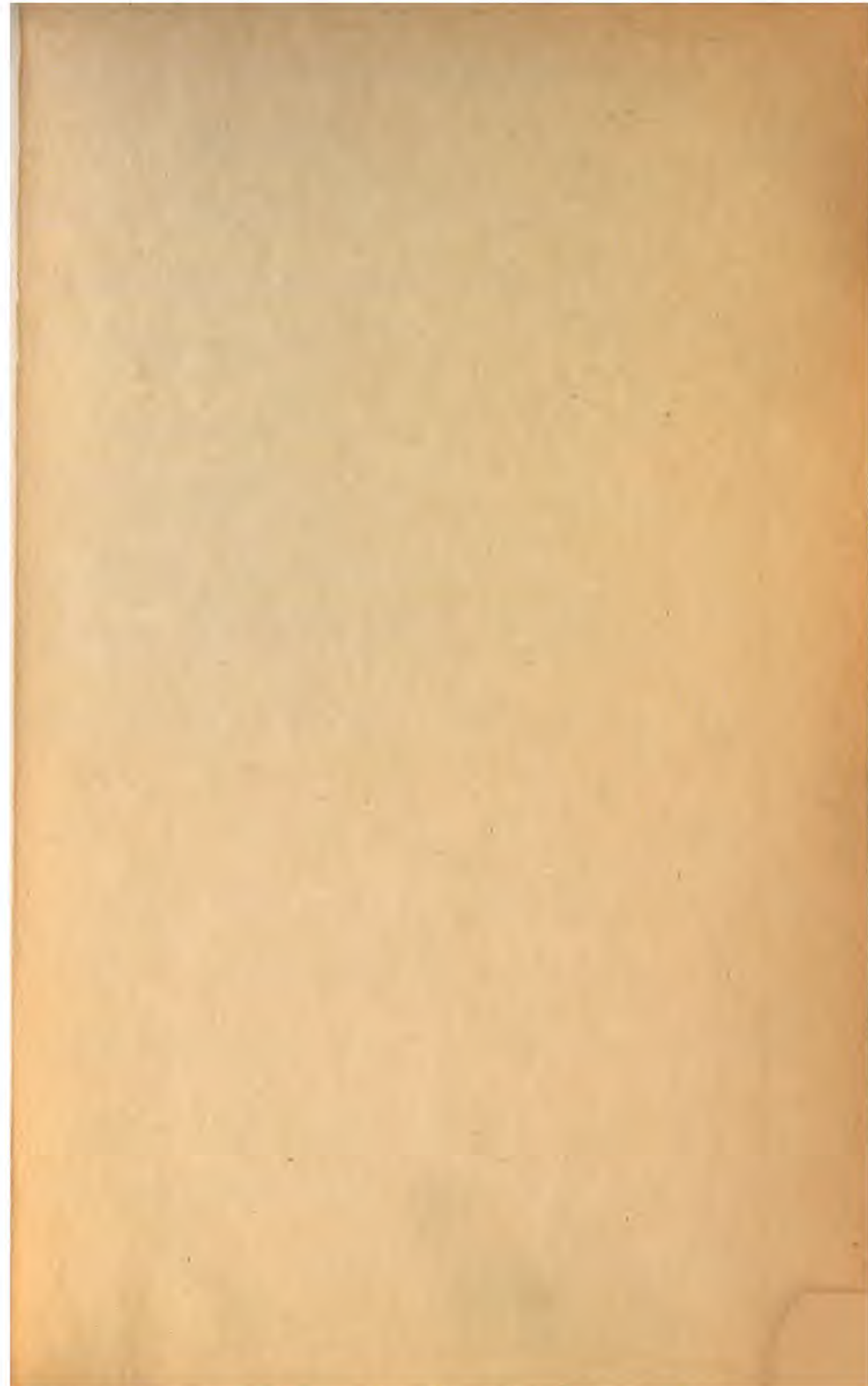
Attest: ISAAC S. MULLEN,  
*Secretary.*

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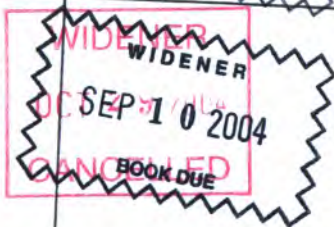
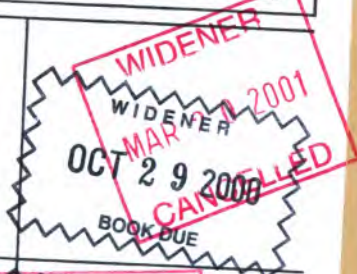


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